GAMES AND SPORTS FACILITIES IN INDIA, SPACE STANDARDS FOR PLAYGROUNDS FOR INTERMEDIATE COLLEGES FOR BOYS WITH PARTICULAR REFERENCE TO MEERUT DIVISION IN U.P.

A DISSERTATION
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by

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C E R T I F I C A T E

Certified that the dissertation entitled " GAMES AND SPORTS FACILITIES IN INDIA ' SPACE STANDARDS FOR PLAY GROUNDS FOR INTERMEDIATE COLLEGES, FOR BOYS, WITH PARTICULAR REFERENCE TO MEERUT DIVISION, IN U.P.", which is submitted by Shri SURYA MOHAN in partial fulfilment for the award of the Degree of Master of Architecture of the University of Roorkee, is a record of student's own work carried out by him under my supervision and guidance. The matter embodied in this dissertation has not been submitted for the award of any other Degree or Diploma.

This is further to certify that he has worked for a period of 8 months for preparing the dissertation for Master of Architecture at the University.

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A C K N O W L E D G E M E N T S

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I am also thankful to all the staff members of 'The National Institute of Sports', Patiala, for their valuable suggestions and time, given to me for discussions during my visit to Patiala.

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SURYA MOHAN

P R E F A C E

Ever since the attainment of Independance the Indian Government and people of India, have been increasingly aware of the poor standards of games and sports in the country. For instance, our standard in the field of games and sports is still at the same level which the world had attained in 1922, while the world standard expected in 1993 as computed electronically shows the substential improvements in the records of most of the items. The causes, for this, may be poor diet, inadequate facilities for sports in schools and colleges and for the common-man, insufficient finances and lack of interest of students and common-man, for games and sports.

Games and sports facilities is a very vide and specialised subject, consisting of many topics, such as, play grounds, equipment and apparatus, finances for games and sports and others like; literature on sports, coaches and instructors, and health facilities.

The scope of this report naturally be expected to cover the entire field of study on Games and Sports Facilities, but embraces the most important aspect i.e. provision of play grounds, for different games and sports in Intermediate Colleges in Meerut Division, based on the programme of sports adopted in Intermediate Colleges.

The Author does not claim this work to be either unique or highly original. The facts given here are a compilation of data obtained from talks with eminent persons

in the field and from visit to National Institute of Sports, Patiala, and from surveys and reports of different private and Government agencies and the survey conducted by the author himself. The recommendations and proposals suggested here are required not only through books and reports but also through the suggestions of people well versed in the field and apart from the fact that the author himself has been an active sportsman of outstanding ability throughout his school, college and university life. Furthermore comparing the needs and standards of our existing facilities with other nations, we are able to assess our short-comings.

It is hoped that this work can be of some use to the people in the field of sports to improve the existing standards and facilities particularly in the State of Uttar Pradesh. If this is true, even to a slight degree, the author would feel that his time has been well spent in conducting this study.

C O N T E N T S

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C H A P T E R - I

INTRODUCTION

1.1 THE PROBLEM, ITS MAGNITUDE AND IMPORTANCE

" The physical fitness of the people of a country presents one of the most important yardsticks to know about its various stages of development. No wonder, every nation is constantly striving to raise the physical standards of its people and India can be no exception. The olympics (world games) which are held once in four years, apart from inspiring sportsmen all over the world, help to project the right perspective on the level of a country's progress in the vital field of sports. " 1 .

India, with its large population over 550 million people, having diverse geographical, climatic and topographical features, has the right type of conditions for producing world beaters in any sports event - track or field. Do we come up anywhere near these expectations? The obvious answer is an emphatic 'NO' ! In a track event, the best which we can boast of are second and fourth positions in 200 & 400 metres won by N.C. Prechard and Milkha Singh in The Paris and The Rome olympics in 1920 and 1960 respectively. Another individual performance of credit has been of a wrestler (Yadav) who won a silver medal inthe 1952 olympics. In the football event, we won the fourth position in the Melbourne olympics (1956) and also won a gold medal in the Asian Games at Jakarta in 1962. However, the standard

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1. Sharma, L.N., "Catch Them Young", Caravan, December I, (1972), p.73 .

of Indian football has been going down and this decline is reflected in the fact that Indian football has failed to get entry in any olympics since 1960 and same case with Volleyball and another games. Hockey is the only game in which India has earned world-wide acclaim. Of course, we had fared better in Asian games but still we have yet to produce an athlete, a wrestler, a boxer, good combination in other games or for that matter, any sports-man who in an individual event can bring us a gold medal in olympics. " Indeed, it is a sad commentary and shameful on a country representing one-seventh of human race, "[1].

The following comparisons are interesting to note: India's best performances to date in the individual events are more or less the same as the world's best as they obtained in 1922 but far behind the present world standards.

Event	India's best (latest record) Men	World's best as in 1972 & 1922	World's best (latest).
100 metres	10.4 Secs.	10.4 Secs.	9.9 Secs.
200 metres	20.8 Secs.	20.8 Secs.	19.8 Secs.
High jump	6'-10.4"	6' 7½"	7'-6.2"
Long jump	26'-5 3/4"	24'-11⅛"	29'-2.4"
Shot put	57'-0"	51'-0"	71'-3"
Pole vault	13'-9.6"	13'-5"	18'-5.9"

Note- Women's performances have not been compared for Indian women are yet far behind to warrant any comparison.

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1. Gandhi, Indira, In a speech in students function at Modern School, New Delhi, 31st August, 1972.

" Apart from the oft-repeated arguments of India's sub-tropical climate and poor diet there are other causes for this unfortunate state of affairs. Theformer being not scientifically very sound and the latter, to some extent true, are a legacy of the centuries old slavery and absence of proper environment conductive to sports promotion."[1] Apart from these there are other certain important reasons for this such as, " Physical education and games did not really form an integral part of a child's education and a consciousness for physical fitness is lacking among the youth."[2]

One of the most important reasons for poor performance in games and sports is lack of physical education, games and sports facilities in our schools and colleges. In an interview, SardarMilkha Singh " The flying Sikh " said that the best age to start games and sports is between 10 to 12 years as if started at latter age the technical defects already picked up by a youth cannot be rectified easily. Thus, the proper time to catch a youth is when he is in between age of 10 to 18 years and this is the time when he is in class from VI to XII (intermediate or secondary education) and thus, the importance of providing adequate facilities for games and sports in intermediate colleges is felt necessary. These facilities may be in terms of play fields, equipment, funds available for games, literature on

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1. Sharma, L.N., "Catch Them Young," Caravan, December I, (1972), p.73.
2. Gandhi, Indira, In a speach in students function at Modern School, New Delhi, 31st August, 1972.

games and sports, availability of coaches and instructors and proper organisation of activities in terms of a part of curriculum of total educational system and organisation of different tournaments and competitions at various levels. In the above facilities, availability of play fields, equipment and funds, play the most important part while the rest are secondary items. Ramnathan Krishnan, our Tennis Wizard of yesterday said in an interview by Naresh Kumar that plenty of tennis courts at schools and colleges, clubs and public centres, cheap equipment, rackets, tennis gut, balls, nets and other equipment, good coaches-basic and advanced and plenty of tournaments all those should be arranged to produce world class tennis players.[1] The ad-hoc Enquiry Committee on games and sports set-up by Ministry of Education, Government of India in 1959 had recommended that a college of students population of 1000 to 1500 should have a minimum of 10 acres land as play grounds, a High School with a strength of 500-1000 students should have a minimum of 3-5 acres; and a primary school should have a minimum of 1 acre. In a recent sample survey made , however, it was felt that even about 15 years after this was submitted, most of the educational institutions do not have adequate play fields. This has been the greatest handicap in the smooth implementation of the national sports organisation programme, which has been launched by the Government of India under the Fourth Five-Year Plan, for Universities and Colleges.

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1. Ramnathan Krishnan, In an interview, The Illustrated Weekly of India, May 11 (1975), p. 41.

The nation must lay special emphasis on Physical Education (including games and sports) in schools andcolleges in order to made progress in sports, according to Mr. Suresh Kumar Lau, a young physical educationist. Mr. Lau, who has made a random survey of physical education in schools in the capital, (which incidentally he has submitted to the Laxmibai College of Physical Education at Gwalior) reveals that there is an acute shortage of play fields, gymnasium, swimming pools and physical education teachers and very little money is spent on physical education. The average expenditure on physical education per student is Rs.6.25 per year compared to Rs. 385.25 per student for general education. TheMinistry of Education and Social Welfare, Government of India, which controls Physical Education (including games and sports) for schools and colleges has granted a petty sum of Rs. 31,600.00 to the School games Federation of India (The organising body of games and sports for all schools in India). Mostly, schools in India depend on games fees collected through students as far as their financial resources are concerned for games and sports.

In Meerut Division (comprising five districts, Dehradun, Saharanpur, Muzaffarnagar, Meerut and Bulandshahr) one of the some richest Divisions of U.P., the conditions are even worse. Most of the area (land) acquired by the college originally, at the time of its establishment has been eaten-up by the additional buildings constructed from time to time to accommodate increasing number of students, resulting in no play field left with the college. No additional area is acquired to compensate for this area originally set-aside

for play fields. Where there was one football and one hockey field originally, now there is hardly any open space left and with this equipment have also vanished as there is no use of keeping them without having play fields. Existing play field are not maintained properly and these have become grazing grounds for cattle in the absence of any of the above games.

A survey conducted by the author reveals that there are approximately 484 Intermediate Colleges (for boys) in Meerut Division and out of these only 36%, 40%, 44%, 76%, 48%, 12%, 20%, 4%, 20%, and 32% colleges have play fields, grounds and courts for Athletics, Hockey, Football, Volleyball, Kabbadi, Cricket pitch, Basketball, Tennis, Table Tennis and Badminton courts (open to sky) and even which are not properly maintained[1]. Facilities for swimming, gymnasium, wrestling, kho-kho and weight-lifting are not available in even a single college. As equipment are concerned 36%, 52%, 64%, 100%, 40%, 36%, 48%, 84%, 20%, 20%, 0%, 0%, 36%, 36%, 20%, 100%, 0%, 20%, 16%, 0% colleges have equipment for Athletic, hockey, football, volleyball, cricket, table tennis, basketball, badminton, tennis, swimming wrestling, boxing, lezim, dumb-bell, drill equipment, lathi, jambia, gadka, apparatus for gymnastics and other tools, but these are not of good standards and are not in proper use, because of lack of play fields and courts[2]. Literature on sports,

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1. Appendix - II, Table Nos. 2,3 and 4,5
2. Appendix - II, Table Nos. 10, 6, 7, 8 and 9.

instructors for physical training, specialised coaches and other maintenance staff are available with 16%, 100%, 0% and 100% but again in the absence of adequate play fields the services of instructors are not utilisedfully and secondly these instructors have done their 2 months' training in drill etc. only and do not possess any special qualification.[1] Main source of investment for physical education (including games and sports) is the games fees collected from the students which ranges from 19 paise to 37 paise from class VI to VIII, IX to X and XI to XII, and out of which one month's fees is to be given to District Inspector of Schools as games and sports fund.[2] The Education Department of Uttar Pradesh does not give any yearly assistance to colleges for games and sports. Only Rs. 6,000/- per college subject to maximum to three colleges per year is given for making arrangements for play fields and given only once to one college in its life time, so far. This is such a small amount in which even one acre of land is not possible to purchase because of the high cost of land. The total analysis reveals that not even a single college in Meerut Division has got adequate facilities for games and sports.

The importance of having adequate facilities for games and sports in Intermediate Colleges in Meerut Division lies in the fact that if the standard of games and sports has to improve to produce sportmen of international level we have

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1. Appendix II, Table No. 10.

2. Appendix I , Para 3 (c) - Education code (1958) of U.P.

to have adequate facilities for games and sports at college level because as stated earlier it is (between 10 to 18 years) the best time when a youth is in college and has capabilities to pick-up modern and scientific techniques to learn correct method and has more flexibility and adaptability. If a promising youngster is picked-up for specialisation at the ripe age of 18 years or above, he has more difficulty in removing his technical flaws than a boy of 9 or 10 years. The gap between the performances of top sportsmen is so narrow that it is the superior technical skill which ultimately decides the issue. " Catch Them Very Young " should thus be the main guiding force of our institutions. To come up to the world standard, a sportsman in addition to possessing brute force, talent, aptitude and stamina, needs to be technical superb and the best age to do it is in between 10 to 18 years when he is in high-school or intermediate. Thus, if adequate facilities for physical education have not been provided at college level, the target of improving standard of games and sports and producing the top class sportsmen will not be achieved. The problem is not a regional one only, ultimately it becomes national problem.

1.2 IMPORTANCE AND OBJECTIVES OF PHYSICAL EDUCATION, GAMES AND SPORTS.

Modern 'man' is the inheritor and custodian of the activities of his ancient predecessor. Before civilisation had ushered into the historic arena and before the onset of the machine age primitive 'man' led a hard and robust life

in contrast to the soft and sedentary life of the present day. Primitive man had to labour very hard for his food. He had to climb trees for fruits, run after animals and hunt them using bow and arrow, spear etc. He had his abode on trees and in caves and withstood the rigorous of nature. On ceremonial occasions he revelled in dances andcompeted in matching his strength, wits and skills with other, in wrestling, foot racing, throwing the spear etc. All these contributed to the physical perfection of the primitive man and there was no necessity for an organised system of physical education then.

As the time passed on and man became more civilised, the importance of organised physical education (including games and sports) has come to be regarded all over the world, as an essential part of their daily life and specially of education at the school, college and university levels. Even in this country, where it has received inadequate attention, no state or educational authority denies the need for it and that is why a Plan of Physical Education and Recreation has been prepared under the instructions of Ministry of Education, Government of India and an Ad-hoc Enquiry Committee was also constituted to find out the reasons for decay of games and sports and to propose measures to be taken to improve the qualities of sportsmen. Conference of the Physical Education instructors was also held in 1958 with the same objectives under the Chairmanship of Dr. C.D. Deshmukh. Nehru Youvak Kendras have been set up in rural area where non-schooling going boys and men can take part in games and sports.

Emphasising the importance of games and sports Sri Puran Chand Bishnoyee, Education Minister, Rajasthan Government said that the play fields are the real institutions of learning in life. These are places where one learns sense of responsbility, discipline and brother-hood among the various types of people. Games and sports are the basis of physical and mental development and build the character and personality of man, on which are based the development of the nation. He categorically said that unless we make progress in games and sports, we cannot do real development of society and nation.[1]

According to the Chairman Mao-Tse-Tung (People's Republic of China), sports make a man proficient in everything from archaeology, to zirconics.

Physical education, games and sports keep a man always happy and healthy and " Sport is the best doctor " advocated by Adenauer, The Chancellor of West Germany[2]. He did not play games nor consulted a doctor but he said that statistics show that people who practised sport have between 5 to 10 percent longer life expectancy.

Physical training, games and sports make a man fit and healthy. To keep body sound and fit and tomaintain perfect figures, ladies should not use and depend on medicine, it is physical exercise (Vyayam) which make them so said Uma Bhaduri, Film actress and beautician.

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1. Hindusthan, Daily News Paper, Saturday, the 14th Sept. 1974

2. The Illustrated Weekly of India, Weekly Magazine , The Time of India Publication, August 11, (1974), p. 13 .

Need for Physical education in modern-day Tensions.

Modern man is finding it very difficult to adjust his nervous system and his emotions to the fast pace of life in to-days' modern world. He finds it difficult to free himself of hate, worry, and fear. He finds it difficult to adjust himself to the bright lights, the screeching noises, the jostling crowds and the rushing madness of urbanand city life. He finds it difficult to refrain from engaging in a highly competitive race for a higher salary, promotion and better position than his fellow worker. He finds it difficult to relax and enjoy living.

Dr. Hans Selye in his book " The stress of life " shows the need for sports, hobbies and physical education in breaking the tension of modern day living. The tension that has gripped his body all day is finally relieved through his interest and enthusiasm for his wholesome activity. Play and exercise should not be put away when high school or college is finished, they should be part of one's routine throughout life. They will supply many mental, physical and ~~moral~~ social dividends that will contribute in great measure to a rich and full life.

Importance and need of physical education in space age has increased to a considerable extent. A man has to be very active and physically fit to cope with situations which demands quick thinking and action. Physical education has motor development (pertaining to speed, stamina, flexibility, mobility and adaptability) objectives which is very much needed in space-flight. The Apollo Astronauts John Glenn, M. Scott Carpenter and other astronauts were given rigorous physical

training so that they could prepare themselves to bear every sort of physical fatigue.

John Edgar Hoover, Director of the Fedral Bureau of Investigation U.S.A. said that the Juvenile delinquency is a complex social problem that has its roots in the home and in parental neglect. It seems that some of the main reasons why youth turns to crime are for want of something, to do, for want of excitment and adventure, for want of belonging to a gan for want of an outlet for their energy and a desire for activity. Youth wants action, excitement and a sense of belonging. If facilities, leadership, and equipment are available for the persuit of sports and other physical activities, many youths would, under proper guidance, choose this medium of spending their leisure time rather than doing something illegal

Objectives.

The objectives of physical education depend to a great extent on the political and social changes that take place in society. India, after achieving political freedon has choosen to become a secular demoratic republic. This means that physical education must make its contribution to the development of such qualities of body, mind and character as will enable our children, to shoulder the responsibilities of democratic citizenship. To recapitulate briefly, the aim of physical education must be to make every child physically, mentally and emotionally fit and also to develop in him such personal and social qualities aswill help him to live happily with others and build him up as a good citizen, advocated by

Mr. H.C. Buck, a well known physical educationist.[1]

1) Physical education involves the whole organism. Oneness of mind and body or the unity of man is a recognised basic tenent of education.

2) Physical education activity is conducive to growth and development. The optimum development of the organic system of the human body is dependent upon physical activity.

3) Physical education contributes to the constructive use of leisure time. Many skills and activities learned in physical education have implications for free hours during a person's whole life.

4) Physical education provides for leadership training by involving students in the planning and operation of the programme.

5) Physical education provides opportunity for expression and creativity. There are many opportunity in physical education to utilise the body as a means of expressing one's feelings and creating new patterns of movement and ideas.

6) Physical education provides for training emotions and sportsmanship. The 'give and take' of games and sports offers opportunities for both emotional release and the training of the emotions.

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1. Buck, H.C., of Y.M.C.A., who founded the first physical education college in India at Madras in (1920).

7) Physical education provides for personality and character development. Group effort, loyalty to the team, and strong ties, are much in evidence on play and sports fields. As such, they provide a valuable contribution to the development of character and personality. The daily adjustments to team-mates and opponents become a laboratory in personal social adjustment.

8) Physical education provides for organic development - physical fitness. Exercise and knowledge about one's body and its requirements contribute immeasurably to physical fitness.

9) Physical education develops neuro-muscular skills. Skill in a variety of sports and activities present many opportunities for instructing pupils in this phase of their development.

10) Physical education develops habits of health and safety. The physical education teacher instructs the pupils in habits of health and safety, and games and contests are played under conditions conducive to learning safety and health practices.

11) Physical education provides for mental development. The learning of game rules, techniques, and strategies, as well as the judgements necessary for good play in competitive games, require interpretive development. Other avenues for mental development are inculcating understanding in regard to one's body and how it functions, the history of sports, the place of athletic activites in the cultures of the world, and other

knowledge that is closely allied to physical education

1.3 DEFINITION OF PHYSICAL EDUCATION, ITS RELATIONSHIP WITH GAMES AND SPORTS AND WITH GENERAL EDUCATION.

As the term Physical Education is not clearly understood to-day by many lay persons, it seems necessary to clarify as to what is meant by the term, with special reference to students. Some individuals think physical education is concerned only with varsity sports; something of it as muscles and perspiration; to others it means " arms and legs and good intentions "; to others it means body building; and to others it is calisthenics done to the shouting in cadence of '1,2,3,4 Because of the confusion that exists in regard to physical education and because of numerous definitions that have come down through history, first it seems imperative to clarify what is meant by physical education.

The term " Physical Education " is anunfortunate misnomer which has come as a legacy of the misleading medieval dualistic conception of body and mind. The present tendency is to lay emphasis on the noun " Education " rather than on the adjective "Physical"[2]. Physical education is that phase of education that is concerned with the physical development and well being of the individual, and through which the participant can be influenced also in his mental, moral and social

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1. Adms, Miller. K., Principles for determining high school grading proccdures in Physical Education for boys, Doctors thesis, New York University, (1959).

2. Thomas, J.P., Organisation of Physical Education, Sent. (1957), Gnanodaya Press, 11, Anderson Street, Madras-1, p.7.

qualities. In fact, it is education of the whole man, the emphasis in the approach and method being on the physical. To try hard, not to give up in face of opposition, to obey rules, to accept decisions, to display courtesy, to co-operative with others, to be a member of a team and to uphold its prestige, to win and not to brag, to loose without sulking, are the lessons which can be learnt through well conducted physical education. " Physical Education" can therefore, be considered as education of the physical as well as through the physical[1].

Relation with games and sports.

As discussed previously, Physical Education, games and sports were the daily routine of primitive man as he had to do all sorts of physical activities to get his food; to save himself from wild animals and for recreation. There was no need of organising those activities separately. But as civilisation advanced, it brought along its trail the physical degeneration of the human species. In ancient period in most of countries different games and sports like boxing, swimming, wrestling, gymnastic, running and throwing etc. were adopted and performed to trained youth and masses for army and self-defence. There was less sense of recreation then more of compulsory need for the benifit of the state. Drill, gymnastic exercises and body building exercis were the main constituents of physical education and less

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1. Joseph, P.M., Organisation of Physical Education, December (1956), Gnanodaya Press, 11, Anderson Street, Madras-1, p.3.

scientific and systematic stress was given on the exercises, other games, sports and physical education were then taken in one sense and had the same meaning. With the commencement of modern period, the need of systematic and scientific analysis and approach was felt in the field of organised activities of sports. This is the age of specialisation and man can achieve perfection in only one field of games and sports and not in all fields because to develop correct tactic and skill one has to approach it systematically and scientifically, because at the top it is the skill and technical superiority which give success.[1]

Sound body, flexibility, mobility and adaptability are the important qualities which a sportsman must possess to be scientifically and technically sound to play a particular game. Conditioning of body through various physical exercises like, weight lifting, endurance running, speed work, streching and flexibility exercises and other modern methods of training before, which are the constituents of physical education, handling the event of game is necessary, as it was done with our " The Second World Cup Hockey Team for Amsterdam " at N.I.S. Patiala, which turned out to be the most fittest bunch of Indian hockey players said K. Datta a sports critic. Importance of having an integrated programme of physical education, games and sports was felt in India also, and because of this reason " a national plan of Physical Education and Recreation" was framed by the Central

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1. Sharma, L.N., Catch Them Young, Caravan, Dec. I, (1972), p. 73 .

advisory board of Physical Education and Recreation, Ministry of Education, Government of India (1956) comprising of physical education and various items of games and sports. Subsequently, a committee was also appointed by the U.G.C. in (1965) to submit a report on Physical Education including games and sports for colleges and universities.

To be an outstanding and world class sportsman, a man should possess robust health, stamina, aptitude and need to be technically superb which could be learned and achieved by doing correct type of physical exercises. Thus, physical education which deals with the physical activities is the integral part of games and sports and vice versa. Every sort of games and sports are full of, less or more, physical activities and as such when physical activities, which are the part of physical education, are involved in each game and sport, all these then can be grouped under one title and that is " Physical Education ", are the findings and recommendations of the Committee which was commissioned by U.G.C. under the Chairmanship of Dr. C.D. Deshmukh.

Relation with general education.

The word " Physical " refers to the body and when we add the word "Education" to the word Physical and use the words Physical Education, we are referring to the process of education that goes on when activities, that develop and maintain the human body are concerned. When an individual is playing a game, swimming, marching, working out on parallel bars or performing in any one of the gamut of physical education activities that aid in the development and maintenance

of his body, education is taking place at the same time.

" Physical education is a very important part of the educational process. It is not a 'frill' or an 'ornament' which has been tacked on to the school programme as a means of keeping children busy. It is instead, a vital part of education. Through a well-directed physical education programme, children develop skills for the worthy use of leisure time, engage in activity that is conducive to healthy living, develop socially and contribute to their physical and mental health."[1]

A study of history reveals that other civilisations have recognised the important place of physical education in general education, in the training of their youth. In ancient Athens, for example, three main studies were followed by every Athenian, gymnastics, grammer, and music.

The slogans " Catch Them Young " and "Catching the promising boys" at a very young age as early as, at the age of 12 years (when they are just at school level) so as to lay the foundation on scientific lines, are advocated by the flying Sikh, Milkha Singh and L.N. Sharma. After the Munich Olympic Games (1972) our PrimeMinister Smt. Indira Gandhi remarked that it was a shameful performance by Indian at the World arena and this is because of the physical education has not been included and given due importance in the programme of education in our schools and colleges. Committee

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1. Charles, A. Bucher, " Foundation of Physical Education", Fourth Edition, The C.V. Mosby Company, Saint Louis, (1964), pp. 27, 28.

appointed by U.G.C. , to suggest measures to be taken to improve the standard of physical education and games and sports, recommended that the development of games and sports in the universities and colleges should be given the highest possible priority as an essential and integral part of education, as the absence of suitable provision for physical education, is one of the major contributory causes of student unrest. Frustration, destructive nature and agressive attitude of students can be controlled by making them busy in rigorous physical activities, so that they can find a way to let out their energy. Thus, physical education is to be and should be considered a part of general education.

A comparison between India and Japan for students participation in Asian Games at Tokyo (1958)[1] shows the importance of games and sports as a part of general education:

Sl.No.	Game/sport	India	Japan
1.	Athletics	1 student	18 students and 6 university st members.
2.	Swimming and water Polo.	-	19 students.
3.	Football	-	3 students.
4.	Hockey	1 student	2 students.
5.	Volleyball	4 students	2 students.
6.	Weight lifting	-	5 students.
7.	Boxing	-	6 students
	Total :	4 students	60students

1. Report of The Ad-hoc Enquiry Committee on Games and Sports, Ministery of Education, Government of India, (1959), Publication No. 401, pp. 11, 12 .

1.4 Scope And Limitations Of The Present Study.

Ever since the attainment of Independence, people, as well as the Government of India, have been increasingly aware of their physical well being. Practising any sort of games and sports, in any manner is one of the easy and best way to keep fit one's physique and health. Though, we, represent one seventh of total population of the world, but our performance in games and sports at international level is highly deplorable.

The reason for this unfortunate state of affairs may be general lack of interest of people in games and sports, or absence of the atmosphere conducive to sports, or lack of adequate facilities, for games and sports, at school and college level, where our budding sportsmen can get their best training in their respective events, or may be combination of all these three things.

Basic facilities, for games and sports may be, in terms of availability of play ground, equipment and apparatus, effective and popular programme for games and sports, teachers and instructors for games and sports, health facilities, nutrition, incentive to sportsmen and the facilities of participation in various tournaments. Out of these, the most important aspect of facilities, is the availability of play grounds, courts, gymnasium and swimming pool, for various games and sports, without which, I think, it would not be possible to attract students' class to participate in games and sports in mass level.

Because of the vastness of the subject and numerous other factors such as, limitation of time and resources, and secondly it was also quite difficult, rather impossible to handle, such a vast topic, single handed, this study has been limited only to the most important aspect : Facilities for games and sports in India with special reference to space standard for play fields (quantitative aspect only - in terms of their numbers and areas) required for various games and sports for an intermediate college (for boys only) in Meerut Division (in plane area). Space standards required for an intermediate college for play grounds for various games and sports shall be formulated based on data available, which would serve as the ready reference to the architects, planners, educationist and for others, who are directly or indirectly related to educational institutions.

C H A P T E R - II

HISTORICAL BACKGROUND

2.1 A BRIEF HISTORICAL BACKGROUND OF GAMES, SPORTS AND PHYSICAL EDUCATION.

The love of learning and the respect for learned have grown with the tradition of India and this has produced a lasting and far reaching influence in the thought process of India. Paucity of historical records makes the hoary past, still a mystery; and hence no detailed account of ancient Indian Physical Education could be built around the available documents, many of which are of 'unequal value and unequal date'[1]. Ancient Indian education in general was essentially religious and personal and this dominant factor should never be lost sight of in the account of the History of Physical Education in India. The reference to Physical Education through the early centuries is therefore bound to be largely indirect and incidental.

The Advent of the Aryans (2000 to 1400 B.C.)[2].

The Aryans entered India through the northern passes probably from central Asia. They were tall, broad-shouldered stalwart, sturdy specimens of humanity, with far-striding leas, and wide-swinging arms. Their features were regular and refined, so that both physically and intellectually they were of a very high order. Their broad hands knew how to grip not only the tail of the plough, but also the hilt of

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1. Sequeira - The Education of India, page 1.
2. The dates in this section are adapted from R.C. Dutt - History of Civilisation in Ancient India, 2 Vols.

the sword; their long arms were skilled in speeding home the lance and the javelin with death-dealing swiftness. Though peaceful in temperament, force of circumstances in a foreign country kept their martial spirit alive and consequently swordsmanship, riding, running, jumping, wrestling, use of bow and arrow, and of the spear became increasingly popular. They did train their " will " assiduously, but they could never lose sight of the development of the physical and spiritual well being.

Education was entirely centred on the study and recital of the Vedas under a Guru or the teacher. The period of studentship was not only a time of learning, but a time of rigorous discipline. Education was acquired through a life of activity with the effort of one's own hand, and this would not have been possible but for the attention paid to keep the body in its optimum level of development. The daily routine for the pupil involved much physical activities for all and for the Kashatriyas, it included Military technique and drill such as Wrestling, Archery, Sword-fight, Mace fight, Hurling the quoit, Horse and elephant riding, Hunting, Swimming, Boxing, etc.[1]

Epic Age (1400 to 1000 B.C.).

This was a period of peace and plenty and may be called the golden age of Physical Education in Ancient India. The Ramayana and the Mahabaratha abound in the exploits of

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1. Dr. Andrews, G.F. - Physical Education for Boys in Indian Schools, page 6.

heroes whose physical prowess is an inspiration even to this day. The names of Rama, Hanuman, Krishna, Arjuna and Bhoema carry a magical aura with them and they typify the perfection of human physical form and strength in a unique way. " Pranayamas, Suryanamaskara and Yogic asanas were a part of the daily routine of the religious life of Brahmans and Vaisyas[1].

Nationalistic Age or Philosophical Age (1000 to 242 B.C.).

It was a period of ease and luxury and the higher virtues of life were on the decline and consequently, the enlightened resorted to the forest in search of salvation. The ascetic ideal of life and the subjugation of everything relating to the body followed in its trail.

Buddhist Period (B.C. 242 to A.D. 500).

Buddhism came into being as a natural reaction to the ascetic ideal, and emphasised the attainment of "Nirvana" through action and not by mortification of the body. Interesting and illuminating records are available about the Buddhist Education as recorded in the accounts of Buddhist visitors to India like Fa-hien, Hiuen-Tsang, and I-Tsing. These Chinese visitors were full of praise for the various centres of Buddhist learning (Universities) like Nalanda, Vikramasila, Kanchipura, Sri Dhanyakataka, Takshasila, etc. The main course of study in all these centres of learning was

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1. Aundh-Chief of - Surya - namaskar, pp. 169-174.

Sanskrit Grammar which led on the logic and finally to Metaphysics, Philosophy and Mathematics[1]. During later times the aesthetic aspect of life also received special attention and the students took part in " debating, archery, chariot-racing, boxing, wrestling, acting and dancing[2]. Takshasila was noted for medicine and surgery and the arts like archery and agriculture. Archery was so popular that there were about 163 Princes belonging to the different parts of the country in this archery school[3].

Mohammedan Period (8th Century A.D. onwards).

The Mohammedan conquest of India took place while the Hindu and Buddhist education was in a comparatively flourishing condition. The connection between Islam and education unfortunately is not very striking. " No longer did the air resound exclusively with the chanting of the Vedic hymns or the recitations of the Buddhist scriptures, but side by side with these, and some times in suppression of these, were heard the Ayati of Quran and Hadis of the Prophet[4].

There is not enough evidence to show that, during the reigns of several Mohammedan kings and the later Emperors, physical education as such was emphasied as a part of General

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1. Keay, F.E., Indian Education in Ancient and Later times, (1942), p.98.
2. Siqueira - Education of India, p.6.
3. Vakil, K.S., Education in India, (1948), p.30 .
4. Law, N.N., Promotion of Learning in India during Mohammadan rule, p. 14 .

Education. As a conquering race and as invaders, they looked upon physical exercise and defensive arts as a Military necessity and as adjuncts to spectacular shows which the royal courts organised to gain cheap popularity. The Maktabs and Madrassahs did not provide any physical education and the private Garadies and Talimkhanas provided facilities for the few who were keen on the development of the body and its strength and skill. It is said that Sultan Firoz Shah encouraged witnessing athletic performance as a diversion. The Polo drill and its variations practised today are all supposed to be derived from the Moghul army exercises[1]. The personal character of the reigning sovereign was the most important factor affecting the thought trend of the people and an illuminating example was that King Ahmad Nizam Sahaid who established schools for Single Sword (fencing) and wrestling round about Ahmadnagar[2]. It is a pity that even such an enlightened Monarch like Akbar should have insisted on pure literary education. However, in the education of the Princes at least there are indications of a better appreciation of Physical Education.

The British Period.

The East India Company was a business concern, and its energies could not be expected to be diverted into any other channel, much less to educational enterprises.

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1. Shenai, R.H., The History of Physical Education and its future in Indian Schools, The Hand-book of the 6th Conference of All India Federation of Teachers' Association, (1929), p. 30.

2. Law, N.N. , Ibid, p. 83.

Things improved when Queen Victoria took over the Government of India and education became a State responsibility. Organised schemes of Physical education, though very unsatisfactory by modern standards, were introduced into High Schools by the year 1875. Indian Provinces vied with one another in framing their schemes and the British influence introduced " Gymnastics " from the German system, Military marching, tactics, rhythmic exercises, bar-bell exercises and Scouts drills. The emphasis on the " Formal Work " made physical education a subject of dislike and hatred in school. The instructors of drill were ignorant and ill-paid and were ordinarily chosen from among " Vastads " or superannuated army gymnasts who knew a little of modified gymnastics and nothing more than what they army had taught them for the conditioning of adult recruits. There was no attempt to provide for, and much less to teach, games to the pupils.[1]

Things slowly began to change when educationists realised the value of Team Games like football, cricket, hockey, tennis, track and field athletics. As the British population increased in India, games like golf, boating, swimming, rowing, archery etc. gained ground amongst the public, but the situation in schools remained unchanged till the year 1920. The twenty years of pioneering service by the late Mr. H.C. Buck of the Y.M.C.A., who founded the first Physical Education College in India at Madras in (1920), was a landmark

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1. Govinda Rajulu, L.K., Buck Commemoration Volume, p.21.

of achievement. The establishment of this college for training educated young men as leaders in Physical Education was the beginning of Scientific Physical Education in India[1].

Development Of Organised Games And Sports In India.

Among the oldest games played on an organised basis in India are Polo, Football, Cricket, and Tennis. All the games became popular long before the Indian Olympic Association was formed.

Tennis

The early history of tennis and its popularity dates from the end of the nineteenth century. The British introduced it in India. The first tournament in India was the Punjab Tennis Championship held in 1885. First All-India Lawn Tennis Championship was held in 1910. All-India Lawn Tennis Association was founded in 1920-21 and much progress was made in skill and India produced some very outstanding tennis player India participated in world tennis tournaments time to time and brought laurals for the country but the playing facilities could not be made available for a common man being expensive.

Cricket

More than a hundred years ago the British servicemen introduced cricket in India. The first cricket match on record was played in India in 1784.[2] In 1792 the first cricket

1. Abrahman, C.C., "Physical Education, Recreation and Health Education for India".
2. Wisden, (1933), p.191.

club in India was formed at Calcutta. The Parsis took the initiative in playing cricket and formed the Oriental Club in 1848 and their team also visited England in 1889-90. When cricket became a popular pastime of the British in India it was soon taken up by the Indian prices in 1926. The cricket Control Board was founded in 1926.

The first ~~1932~~ 'official' Indian team visited England in 1932. Later on regular tournaments were arranged and the most famous of these are ' The Ranji Trophy'and 'Duleep Trophy' in memories of 'Maharaja Ranjit Singh' of ' Nawanagar ' (1872-1933) and of Duleep Singh Ji (1905-1959), nephew of Ranji the great cricketers.

Indian Olympic Association

The Indian olympic Movement in India started in 1919 by Sri Darabji Jamshedji Tata (27-8-1859 - 3-6-1932), a great Indian Philanthropist.

Meebings were held at different places and International Olympic Committee granted India's direct affiliation, in Februai 1920. A small Committee was formed and a team of six athletes was sent at Antwerp in 1920 for the VII olympic games.

In 1923 Dr. Neohrn formed an ad-hock Committee. The next meeting was held in 1927 and the constitution of the I.O.A. was formed. In course of time State Olympic Association, other sports Control Boards were formed and got affiliated with I.O.A. and the games and sports were promoted to a great extent.

These days I.O.A. is solely responsible for the participation of any Indian team in International tournaments.

Athletics

The Amateur Athletic Federation of India (A.A.F.I.) was founded in 1944. Since then Indian Athletes have shown improvement in their performances but they are nowhere near the international mark.

In order to attrach public interest and to foster keen competition in athletics the A.A.F.I. Council on 5th Augus 1962, decided to introduce Extar new competitions[1].

(1) All-India Inter-Zone Championship.
(2) All-India Inter-State Championship.
(3) All-India Open Championship.

The above three competitions are arranged in progressiv order so that competitors may set up new all-India records.

Basket Ball

The game attracted attention during the late thirties and increased in popularity at the end of the second world war. It is an American game and the Y.M.C.A. is largely responsible for its introduction in India.

The Basketball Foderation of India, founded in 1950, conducts separate annual National Championship on provincial basis for men and for women.

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1. Annual Report, Amateur Athletic Federation ofIndia,(1961-62)

Since 1954 an Inter-State Championship for High School boys has been held every year alongwith the National Championship. Different tournaments are conducted every year and India participates in International tournaments also.

Boxing

Boxing as a form of sport is popular in the Armed Forces and to a certain extent in the public schools. Indian Boxers have taken part in the olympic and other competitions but have not yet reached the standard of western competitors. In Asian games Indian boxers have shown great improvement.

The Indian Amateur Boxing Federation was founded in 1958, since when the standard has shown improvement.

Cycling

Cycling is a popular sports all over the world, and is included in the olympics. Cycling competitions are of two main types - road racing and track racing.

The National Cyclists Federation of India (N.C.F.I.) was founded in 1938 and is affiliated to the International Body. National cycling championship is conducted every year and India also participates in International tournaments.

Football

The British Army in India first played organised football in 1880[1]. It is the most popular game in the world as well as in India. India gave good performance at Melbourne in 1956 and

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1. Official Report by Sardar Surjit Singh Majithia, Indian Olympic News, November (1982), p.17.

stood first at Jakarta in 1962. Regular and important tournaments are held every year in the country. The main trophies for football in India are (1) The Durand Cup, Delhi, (2) The I.F.A. Shield, Calcutta, (3) The Santosh Trophy, (4) The Rovers Cup, (5) The D.C.M. Tournament, Delhi and (6) Sir Acsutosh Mukerjee Trophy.

Gymnastics

Gymnastic was introduced in educational curriculum in Indian Schools wherever possible, by British educational authorities. Army officers and instructors held the institutions on a part-time or full-time basis.

The word ' gymnastics ' has yet to be understood properly in India. The Gymnastic Federation of India was founded in 1951. Gymnastic teams were sent to participate in olympics but gave very poor performance.

Hockey

Modern hockey is traced from 1876 when it was first played by the British in their own country.

The early history of hockey in India runs parallel to the development of the game in England. The British regimental teams were the first to play hockey in India. The game was then introduced in the educational institutes.

States hockey associations were formed time to time and the Indian Hockey Federation was founded in November 1925 at Gwalior. Since then India is participating in all major international tournaments and play regular matches in outside countries and brought laurels for India.

The principal Hockey tournaments in India are : (1) The Beighton Cup, Calcutta, (2) The Ramaswamy Cup, (3) The Agha Khan Cup, Bombay, (4) Dhyan Chand Trophy, (5) Scindia Gold Cup at Gwalior, (6) Lady Rattan Tata Trophy for women, (7) Nehru Memorial Hockey Tournament, Delhi.

The Indian Hockey Federation also organises Junior Hockey Championship for school boys and conducts coaching camps.

Kabaddi

This is an old game which is still popular in rural areas. Popularity of game increased in educational institutes. Women also play this game. The kabaddi Federation of India was founded in 1951-52 and conducts tournaments annually.

Swimming

The Swimming Federation of India founded in 1940 and conducts swimming competitions regularly. The international standard is very high for our competitors, who have little chances to improve without adequate coaching in the educational institutes.

Volleyball.

The Volleyball Federation of India was founded at Ludhiana in 1951. After the formation of Volleyball Federation the standard of volleyball has improved. In 1958 and 1962 in the Asian Games Indian team won bronze and silver medals respectively.

Weight-Lifting

The first weightlifting competition was organised by the Baghbazar Gymnasium in 1920 in Calcutta. The Indian weightlifting Fedoration was founded in 1935. In 1936 the I.O.A. gave it provisional affiliation but confirmed it in 1938. Weighlifting Federation also introduced the ' Bharat Sree ' contest in 1951. It is now conducted annually.

Wrestling

One of the oldest pastimes in India is wrestling. During late nineteenth century and since then Indian wrestlers have commanded respect in Europe and America.

When the Federation came into existance, since then the Indian wrestlersalso showed some improvement. Unless the western rules of wrestling are widely adopted in India, there is little chance of Indian wrestlers doing well in international competitions.

Sports Control Boards

To promote games and sports and to conduct competitions on well organised basis different organisations formed their own Control Boards and some of are as follows :

(1) The Services Sports Control Board, New Delhi, formed in 1919.

(2) The Indian Railway Sports Control Board, New Delhi.

(3) The All-India Police Sports Control Board, New Delhi.

Those Control Boards organise games and sports in their respective organisations which include all major and important games and sports.

Indigenous Games

A number of games originated in the villages of India. The chief characteristic of many of these is that they are played mostly by children. Moreover they are cheap because there is no equipment involved in them, not even a ball. It is difficult to trace the origin of these games but it is certain that they have been the regular pastime of the rural population for many centuries. These are : Atya-Patya (Lon-Pat), kho-kho, Guli-danda, Sia Mar Danda and Yoga.

Physical Education After Independence

During the British period physical education received encouragement and support from the Central Government as well as the provincial and State Governments. When India achieved independence, there was already a well-established organisation of physical education all over the country. After independence the Government of India undertook measures to expand physical education on a national scale hitherto unprecedented. The following are some of the outstanding achievements :

(1) Central Advisory Board Of Physical Education And Recreation - The board held a meeting on 23rd and 24th December, 1954 and three sub-committees were formed to prepare :

(i) Syllabus of Physical Education for Boys.

(ii) Syllabus of Physical Education for Girls.

(iii) Norms of Physical Fitness.

These sub-committees did their jobs and the programmes were adopted in schools.

(2) All India Council of Sports - In August, 1954 a meeting of the presidents of the various national Federations and Associations washeld and All India Council of Sports was formed by the Government in November, 1954, to serve as a co-ordinating link between the various organisations and the Central Government to give time to time advise to the Central Government for the promotion of games and sports in the country.

(3) The Ad-Hoc Enquiry Committee On Games And Sports - Set up on 7th July, 1958 and submitted its report in 1959.

(4) Seminar on Physical Education - The Union Ministry of Education arranged two seminars on physical education in 1958, one for principals of colleges and another for state Inspectors and Directors of physical education.

(5) National Physical Efficiency Test - In 1959 the Union Ministry of Education introduced National Physical Efficiency Tests for men and women and for school boys and girls.

(6) National Coaching Schemes - In September, 1953, the Government of India introduced the Rajkumari Coaching Scheme for games and sports with the object of training good athletes and sportsmen.

(7) The National Sports' Institute - First National Institu of Sports was founded in March, 1961 atPatiala to trained coach and instructors for various games and sports and later on also started giving coaching to national teams and proved its importance. More centres at different places are also set up recent

(8) The Inter-University Sports Control Board - A Board of Inter-University Games and Sports, India and Cylone was set up to promote games and sports in universities. However, inter-university games and sports competitions have now become an annual feature.

(9) The School Games Federation Of India - It was founded at Calcutta in 1954 by representatives of Education Departments of various State Governments. Inter-state National Championship in games and sports for higher secondary school boys and girls was started.

(10) Compulsory Physical Education In Schools - This scheme was to put into effect from July, 1963 but the same has not yet come into force. Other schemes like The National Disciplin Scheme, N.C.C. and A.C.C. are the regular features of the curriculum in schools and colleges.

2.2 The General Recommendations And Measures Suggested By Various Agencies For The Promotion Of Games And Sports.

There are very few organisations and agencies in India which are concerned with the general promotion of games and sports specially among youth generation which can be a source and stream of good players and sportsmen of national and international standard. Most of the games and sports associations or federations are performing their duties just only to arrange tournaments and sending teams outside the country. States education departments are not doing much work for the same. It is only the Ministry of Education, Government of India who is doing some constructive work in this direction.

Some of the recommendations and steps taken by Union Education Ministry are listed as :

(1) National Plan For Physical Education And Recreation :

A detailed plan and syllabus for physical education for boys and girls was prepared alongwith the norms of physical fitness by the Central Advisory Board of Physical Education and Recreation in 1956. In this the details and types of exercises were given, which were to be adopted by boys and girls and to be included in the curriculum of physical education in schools and colleges. But the same was not introduced in the curriculum of schools and colleges effectively. The programme also includes the type of facilities to be provided for each game and also the other things like; instructors, health facilities and time-table[1].

(2) The Ad-hoc Enquiry Committee On Games and Sports :

In view of the poor standard of performance of Indian competitors in international competitions, the Government of India appointed an Ad-hoc Committee to suggest ways and means to improve the present situation.

The Ad-hoc Committee submitted its reports in 1959 with the following recommendations[2]:

(i) The importance of physical education teachers should not be under estimated and their service can be utilised in carrying out the central plan of coaching. The

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1. A National Plan of Physical Education and Recreation, Central Advisory Board of Education and Recreation, Ministry of Education Government of India, (1956).
2. Report of The Ad-hoc Enquiry Committee on Games and Sports Ministry of Education, Government of India, (1959).

colleges of physical education should re-orient their training programme and should pay more attention to games and sports.

(ii) More attention should be paid to games and sports in rural areas.

(iii) Utility-type stadia should be constructed on a shramdan basis; if this is not possible, the ground should atlea be enclosed.

(iv) The educational authorities should pay more attention to propor nutrition as this is a great factor in raisin the powers of endurance.

(v) Schools and colleges should have sufficient land for play fields according to the strength of the institutio

(3) Seminar On Physical Education[1].

The Union Ministry of Education arranged two seminars on physical education in 1958; one for principals of colleges of physical education and another for state inspectors and directors of physical education under the Chairmanship of H.H. The Maharaja of Patiala. Important recommendations are as follows :

(i) There should be medical examination of all school children.

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1. Report of The All-India Seminar on Physical Education for State Inspectors and University Directors, Publication No. 432, Ministry of Education, Government of India, (1959).

(ii) There should be more Degree Colleges of physical education in the country, atleast one in each zone.

(iii) There should be a national Research Council of physical education preferably at New Delhi, which should undertake research projects for practical applicatior

(iv) Physical education should be given an equal status with other academic subjects.

(v) The schools should possess the adequate land for play grounds.

(vi) The universities should include compulsory and optional physical education activities and should not regard the N.C.C. as a substitute for physical education.

(vii) Municipal Corporations should have recreational centr where trained organisers should be appointed.

(viii) A special tax should be included in the Budget for the provision of recreational facilities to the public.

(4) National Physical Efficiency Test :

In 1959, The Union Education Ministry introduced National Physical Efficiency Tests for men and women. These are to be conducted every year and are open to every one. For men, there are two tests; one for seniors (above 18 years and another for juniors (below 18 years). These tests consis ts of different items arranged in groups from which a number

of items have to be selected. The same grouping applies to women also. Apart from there is no age restrictions.[1]

(5) Scheme For Compulsory Physical Education In Schools:

The border conflict with China on October 20, 1962, has forced Government to give serious consideration to a scheme of compulsory physical education in schools. For this reason, a new integrated scheme of compulsory physical education was to put in effect fromJuly, 1963. Provision for Rs. 6 crores and 40 lacs was made to cover all students from class VI to XI. Five periods of not less than 45 minutes each were to be devoted to physical training. However, the scheme has not yet come into force[2].

(6) National Sports Organisation :

A programme to promote games and sports at university level was recommended in April and September, 1967 by the Education Commission and also by Vice-Chancellor of Universities, with the following objectives[3]:

(1) Selected students of degree course with marked proficiency in sports and games should be included (except girls students).

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1. A Plan for National Efficiency Tests, Ministry of Education, Government of India, (1959), Publication No. 392.

2&3. Khan, E.A., History of Physical Education, Scientific Book Company, Patna-4, (1964), p. 432.

(ii) High priority should be given to development of sports and athletics and promising sportsmen/athletes should be exempted from N.C.C./N.S.C. provided such students practice regularly.

(iii) The object of N.S.O. in colleges is to provide universality in the matter of sports and games, and throu universality promote excellence among college students in selected fields.

(7) The School Game Federation Of India :

This was founded at Calcutta in 1954 by representative of states education departments and decided to conduct annually Inter-State National Championship in games and sports for High Schools in order:

to encourage, promote and popularise all recognised olympic athletic events and games as well as indegenou National games amongst school boys and girls;

to work for the physical welfare of school boys and girls of India;

to hold National and International Sports Meets for school boys and girls[1].

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1. Souvenir, 6th National School Championships, (1960), Trivandram.

C H A P T E R - III

ANALYSIS OF EXISTING FACILITIES

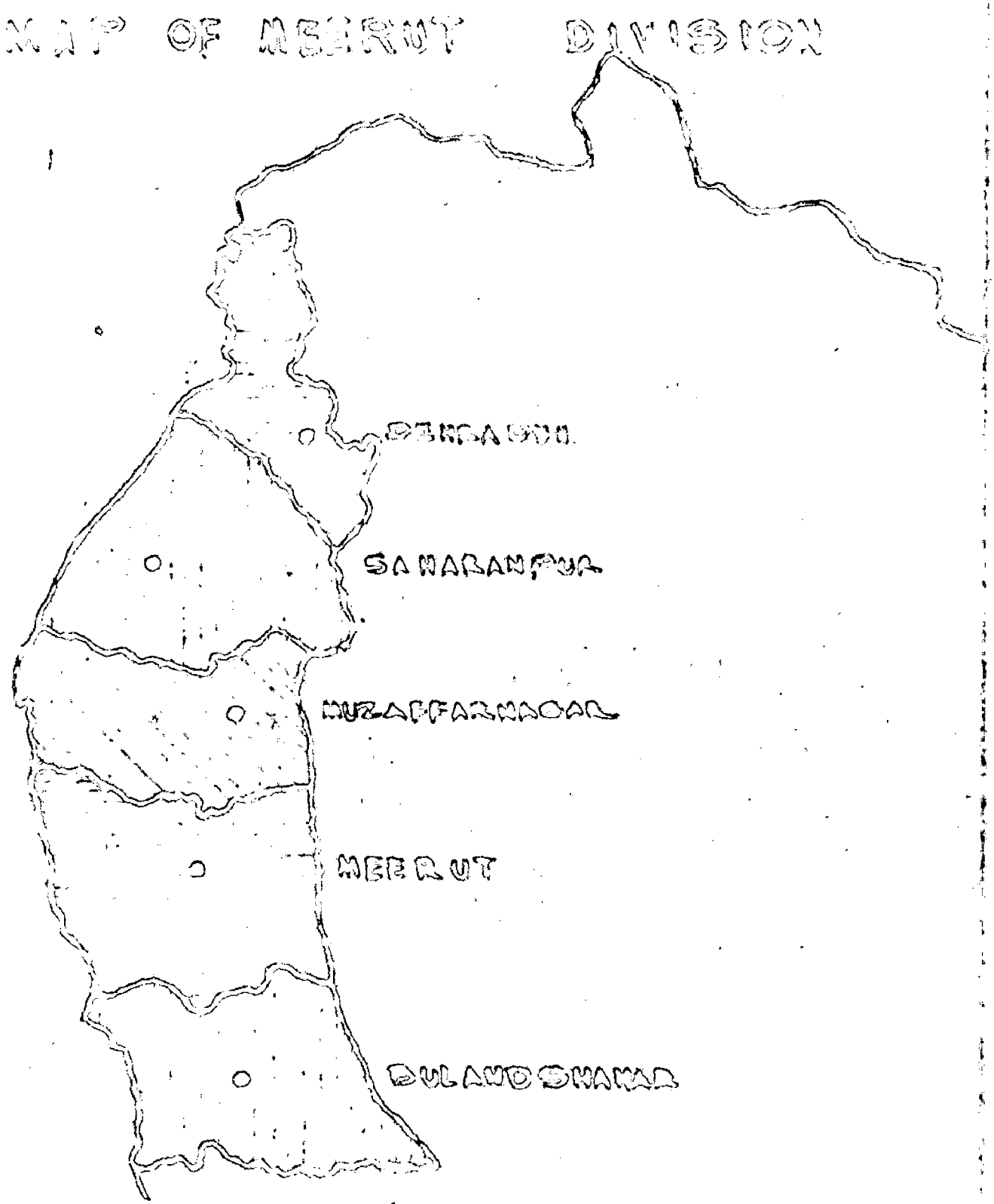
MAP OF MEERUT DIVISION
BIJNAUR
SAHARANPUR
MUZAFFARNAGAR
MEERUT
BULANDSHAHR

FIG.NO: 3.2.4

ANALYSIS OF EXISTING FACILITIES

3.1 Existing Conditions Of Facilities In Intermediate Colleges In Meerut Division

Intermediate Colleges are situated both in urban as well as in rural areas but they are more concentrated in cities In rural areas these are situated between 5 to 10 miles apart, sometimes even more, from each other. There are 484 (1971-72) intermediate colleges for boys in Meerut Division. Meerut Division comprises five districts, Dehradun, Saharanpur, Muzaffarnagar, Meerut and Bulandshahr with district headquarte at the city itself as the name of district.

The author visited 50 colleges, 10 in each district selected atrandom, situated in all directions around the central points or heart of the district, both in urban and rural areas. Location of these colleges varies from those easily approachable by road to those where hardly any proper means of transport are available. The data has been collected on a printed proforma from 25 colleges out of the above 50 colleges selected atrandom, during the survey conducted from June, 1971 to October, 1971[1]. The opinions of various educational authorities, members of staff and students were obtained throu discussions. The main points of discussions and records include whether the college is run by the Government or by a private body, the strength of college, in terms of numbers of students and their participation percentage in games and sport

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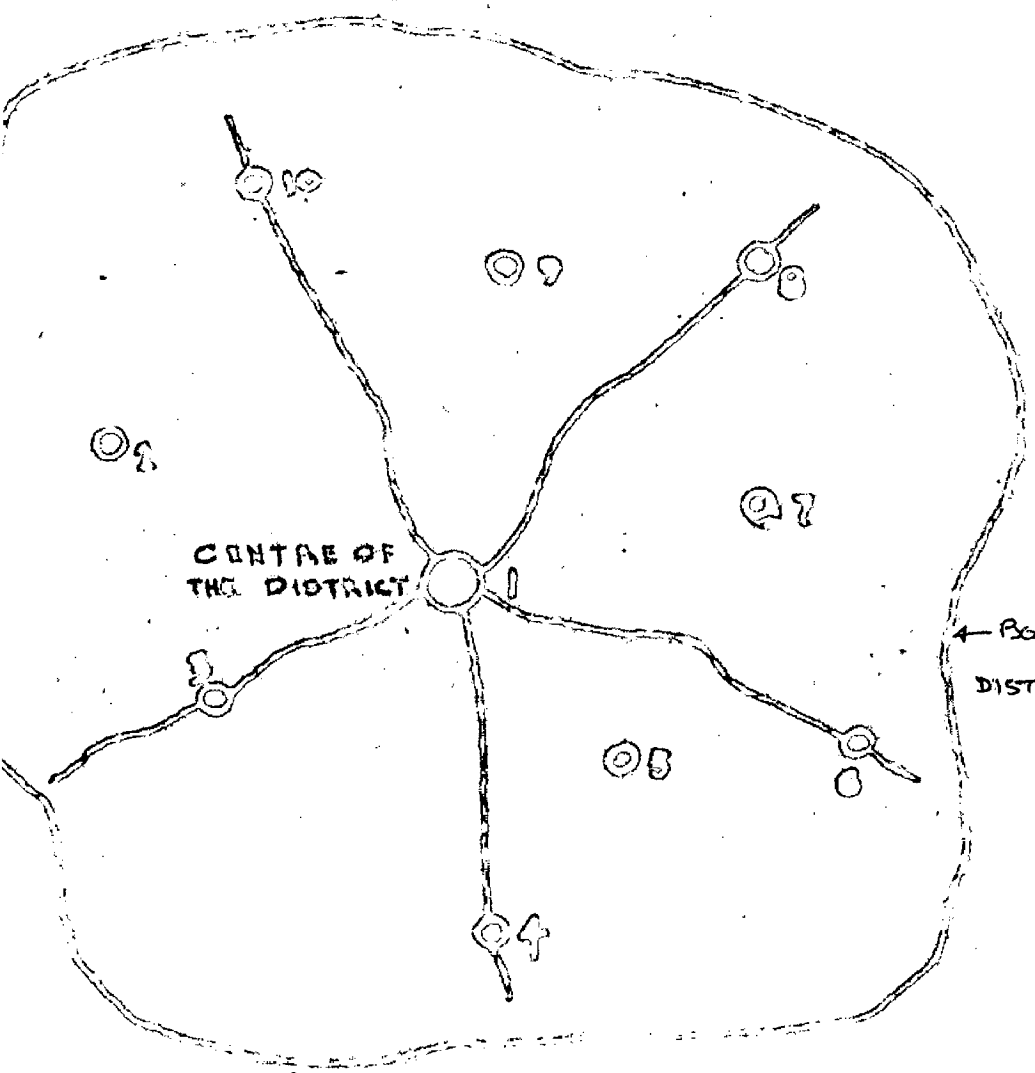
1. For names of Colleges, see Appendix II, Table No. 1.

SELECTION OF COLLEGES
FOR SURVEY



COLLEGES (1 TO 10)

FIG NO: 3.1.a

Games and sports generally played, alongwith their facilities available in college in terms of play grounds, courts, equipment and apparatus; whether games and sports are compulsory or not, expenditure and financial resources for sports, number of physical training instructors, available literature on sports, health facilities and tournaments held in college, etc. The following are some of the useful results and data which have been arrived at, from survey :

3.1.1 General :

(i) There are hardly about 2% colleges run by the Government. These Government colleges have tolerable buildings, but open and outdoor spaces are inadequate, and not planned in a proper manner for orientation and inter-relationship. The rest of colleges (98%) are run and managed by public organisations and every activity of the colleges is controlled by the managing committee. The rules and regulations are frequently moulded to suit the interests of the managing committee.

(ii) All the private colleges get aid from the Government in some way or other, and the criteria for sanctioning the aids are very flexible.

(iii) There is a common practice of getting aid for one purpose and utilising it for another.

(iv) These colleges are victims of local and internal politics among members of the managing committee

and staff.

(v) Most of the colleges have single storeyed structures with just sufficient building-space which is not plann ed properly.

(vi) The professionals have hardly been consulted for their expert knowledge. Even if an architect has been consu ted that is merely to supply the drawings of building, to get the aid from the Government or from any other agency.

(vii) In urban area most of the open spaces left originally for play grounds and outdoor activities have been encroached upon time to time, for building construc- tion, to provide accommodation for more students, as the number of students went on increasing day by day, resulting in hardly any usable open space left with the college.

(viii) There is a general feeling that only those students who are not good in studies, take part in games and sports and intelligence is not required in games and sports. Other students are less interested in games and sports as they think that there is no scope of having good future in life if they adopt sports as their career and it is only wasting of time if they go for sports.

(ix) Colleges situated in rural areas are planned and constructed on the directions given either by the Principal or any other influential member of the

managing committee, with the result that the whole college complex is planned in an haphazard manner.

(x) Games and sports, and physical education are not compulsory in any college except Central Schools which are only 4 to 5 in the whole Division.

3.1.2 Case Studies :

Particular case studies of 25 colleges[1], for which detailed information was collected by conducting surveys, gave some useful and interesting results which are listed as follows:

(i) Size of Colleges (in terms of strength) :

There are no upper and lower limites of number of students in colleges. It varies from 289 to 2000, and some times even less or more than these[2]. Sometimes the number of students in a section, goes upto 70 to 80, with traditional methods of teaching being adopted in the college.

(ii) Participation Percentage :

As compared to the total strength of colleges, students participation in games and sports is very low which varies from 5 to 30% and generally remains around 10% only. In exceptional case it goes upto 95%, for example in case of Central Schools[3]. Generally, there are a handful of students only who take part in most of the games and sports which are played.

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1. Appendix II, Table No. 1.

2&3. Appendix II, Table No. 2.

(iii) Types of Activities - Games and Sports Programme :

The whole games and sports programme in colleges has bee divided in two parts to suit the participation facilities at college, zonal, district and national level tournaments for intermediate colleges.

A. (a) Autum games, (b) Winter games.

The following items in each category of games alongwith their percentage of incidences in colleges are listed below :

(a) Autum games

Particulars	Played in colleges (%).
Hockey	40 %
Kabbaddi	48 %
Football	44 %
Swimming	5 %
Kho-Kho	4 %
Table Tennis	6 %
Gymnastics	2 %

(b) Winter games

Cricket	40 %
Volleyball	76 %
Badminton	40 %
Basketball	3 %
Athletics	82 %
Best-physique	4 %

All the above mentioned games and sports are not played regularly in any college, and played seasonally in most of the colleges, these are generally started a few days before the actual date of competitions. Facilities for playing table tennis, tennis and badminton are generally available for the members of staff and sometimes only for a limited number of students, who possess important positions in the college. Regular practice for the players in a particular game disappears as soon as the tournament or competition is over.

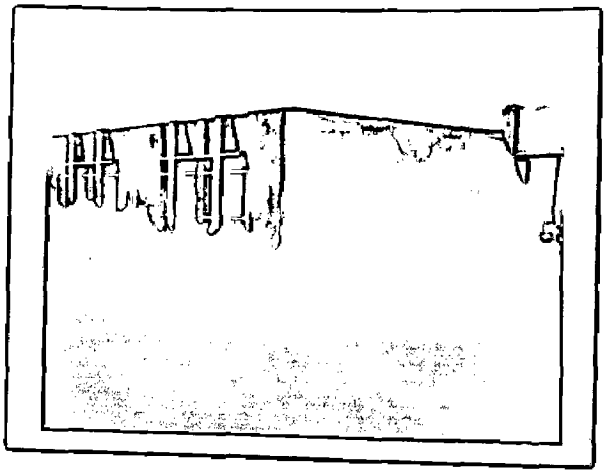
B. Tournaments and Competitions

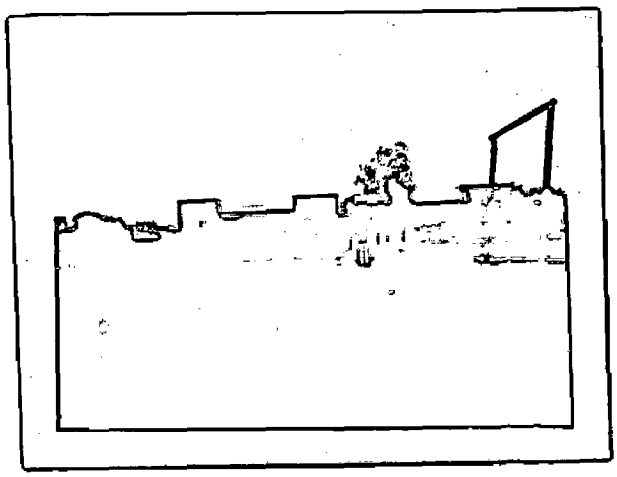
(a) Inter-class tournaments in different items are no held in more than 15% colleges regularly. Only "athletics sports week" which includes only races, jumps and throws is arranged from 2 to 3 days in colleges, every year.

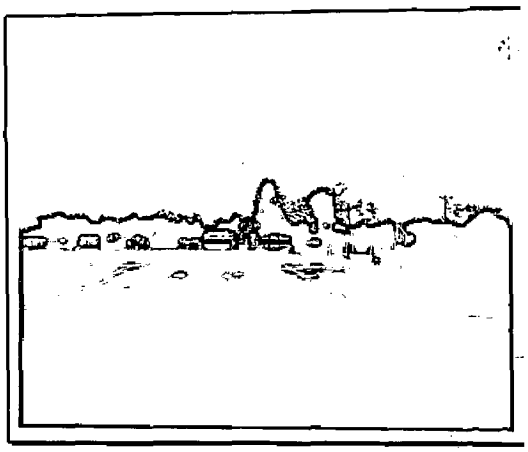
(b) In Inter-college tournaments in various games, on the basis of which zonal, district, regional (divisional) and state teams are selected, only 30 to 35% colleges take part and rest of colleges do not take part or if do so, take part only in individual items of athletics.

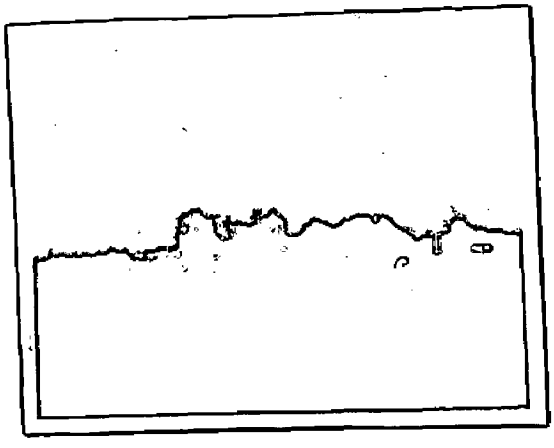
(iv) Play Grounds And Courts :

Availability of play grounds and courts in colleges is an important aspect of facilities for games and sports to improve and maintain the standard of games









sports. Their provision in percentage of colleges have been given in the table as below :[1]

A.

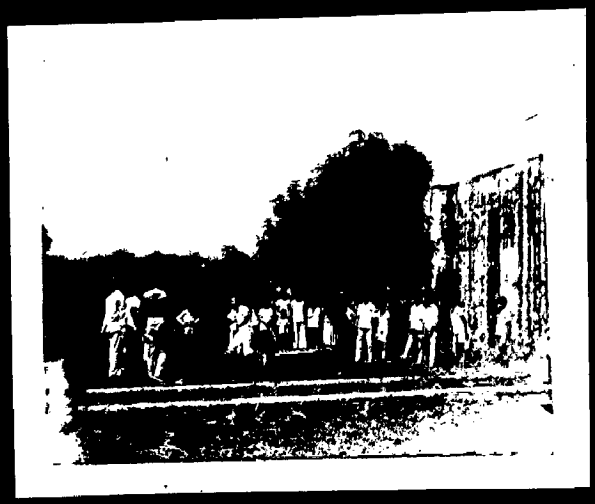
Sl. No.	Game/Sport	Percentage	Remarks
1.	Athletics	36 %	Track
2.	Hockey	40 %	Ground
3.	Football	44 %	Ground
4.	Volleyball	76 %	Court
5.	Kabbaddi	48 %	Court
6.	Cricket	12 %	Pitch
7.	Basketball	20 %	Court
8.	Tennis	4 %	Court
9.	Table Tennis	20 %	Room
10.	Badminton	32 %	Open courts

B. (a) Covered multipurpose halls which can be used for indoor games are available with 8% of colleges, but the same are not designed particularly to suit their requirements.

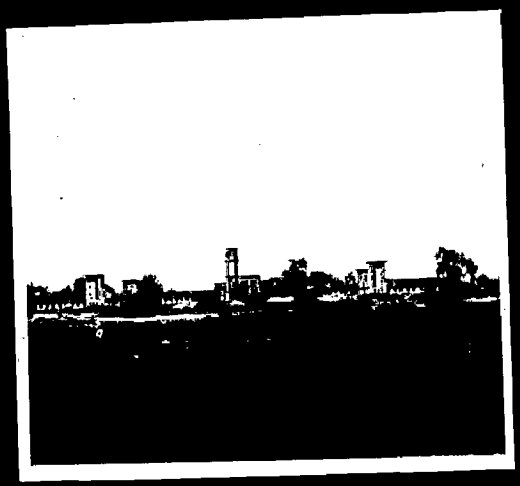
(b) Rooms for table tennis are available in 20% colleges which are not specially designed for this purpose but only a make-shift arrangements are made by the staff members.

(c) Swimming pool, gymnasium (open or covered), wrestling pit (mat) and the-the ground are not available in any of the colleges.

1. Appendix II, Table Nos. 5, 2, 3 and 4.



'Urge to Play'
Even in the absence of adequate Playgrounds.



Poor maintenance of Playgrounds

(d) In the absence of a gymnasium facilities needed for "Best Physique" development are not available in any college.

(e) No separate ground for Rhythms (fancy drill, lezim and dumb-bell), Combative-sports (Lathi, jambia and fari gadka) and physical training have been provided in any college. These activities are arranged and performed in combined hockey, football and athletics grounds.

As far as the maintenance of these play grounds and courts are concerned, not even in 1 of the colleges it is properly done.

(v) Equipment And Apparatus :

These are of two types :

(a) Equipment and apparatus for playing.

(b) Equipment and apparatus for training and developing correct technic and skill.

(a) Equipment and apparatus for playing:

This consists of the equipment and apparatus, which is actually used for playing like hockey-sticks, footballs, tennis and badminton racquets, cricket bats, spiked shoes for running and jumpin etc. Their availability in 8 of colleges has been given in the table which shows that a particular group of equipment and apparatus for playing that game or sport are available in such and

such percentage in colleges.

Sl. No.	Game/Sport	Equipment/Apparatus	Percentage
1.	Athletics	Spikes, starting blocks, poles shots, discus, javeline, hammer, relay batons, tug-of-war rope and tape.	44 %
2.	Hockey	Balls, sticks, leg-guards, boots, abdominal guard, and gloves.	52 %
3.	Football	Balls, spare bladders, boots, knee-caps, anklets, and stockings.	64 %
4.	Cricket	Mat, stumps, bats, bails, wicket-keepers' pads, gloves, balls, leg-pads for batsmen.	40 %
5.	Volleyball	Balls, spare bladders, nets and net-posts.	100 %
6.	Basketball	Balls, spare bladders.	48 %
7.	Badminton	Racquets, shuttle-cock, nets and net-posts.	84 %
8.	Table-Tennis	Balls, table, net and bats.	36 %
9.	Tennis	Balls, racquets and net.	20 %
10.	Rhythms	Lezims, dumb-bell, ring (hoop) and music band.	36 %
11.	Combative	Lathi and gadka	25 %
12.	Gymnastics apparatus	Parallel bar, horizontal bar, dumb-bells and chest expander.	16 %
13.	Swimming	Swimming costume.	20 %

other equipment and apparatus given below in the table for the above mentioned games and sports are not available even in a single college :

Sl. No.	Game/Sport	Equipment/Apparatus
1.	Athletics	Starting device, finishing post, megaphone, pole vault box, hurdles, take-off-boards, cross bars and rests, stop watch, judge's stand, victory stand, iron ring, and net.
2.	Hockey	Goal-posts, goal boards, shine guards, wrist cap and goal post net.
3.	Football	Goal post, shine guards and goalpost net.
4.	Cricket	Practice net, score board, abdomen pads.
5.	Volleyball	Net marker and referee's stand.
6.	Basketball	Back stops and ring, basket nets, posts or stands, number's plate, special watch and score board.
7.	Badminton	Presses, and referee's stand.
8.	Table Tennis	Spare nets.
9.	Tennis	Presses, net posts, referee's stand, curtains and curtains post.
10.	Kho-kho	Posts for kho-kho.
11.	Combative	Jambia and Sari-gadka.
12.	Gymnastics	Low parallel bars, mats, beams, vaulting box (horse), long horse, climbing ropes, balance bench, vertical ladder (wall bars), weight lifting sets, rings, spring board and pommel horse.
13.	Swimming	Hair nets.

Some salient features regarding this equipment is shown below :-

1. There are 10 to 12% colleges in all in which above mentioned available equipment is in good and usable condition, as these are not purchased and repaired annually.

2. 90% colleges do not make purchases every year regularly, and do so only once in four to five years.

3. Thése equipment and apparatus ~~is~~ are not issued or given for use to any student generally and only given to those sportsmen who have shown distinction in particular game.

4. In the absence of mats, most of the equipment of gymnastics, wrestling, body-building (best-physique) and boxing are not practised in any college. For these either individual makes his own arrangement or avails the facilities, if available, somewhere nearby.

(b) Equipment and Apparatus For Training:-

These are special types of equipment whichare used to learn accurate and correct methods and skills for a particular event or game. These are not available in any college at all.

(vi) Funds :

Funds for games and sports are realised only through games' fees from the students, alongwith other fees every month These vary from 19 paise for class VI to VIII, 25 paise for class IX & X and 37 paise for class XI and XII. Depending on the number of students, total amount of games' fees varies

from Rs. 1274.00 to Rs. 5735.00 per year, out of which amount, one month's fees is to be deposited in games fund with the District Inspector of Schools. Thus, amount of expenditure per student, per year, comes to Rs. 3.00 to Rs. 4.00 only. There is no regular help from the State Government or any other agency. State Education department gives aid to three colleges per year, Rs. 6,000.00 each college, per year, for the purpose of making arrangement for new or additional play grounds, only once to one college.

The amount of money realised through fees and aid from education department, has not been utilised properly and funds are often misused.

(vii) Miscellaneous :

(a) Instructor and Coaches :

One physical training instructor in 76%, 2 in 20% and 3 in 4% colleges are available.[1] Majority of them have done two months' course in physical training (drill etc.) only. No special coach either trained from N.I.S. or done graduation from any college of physical education, is available even in single college. In the absence of any effective programme, for physical education, services of available instructors are not even utilised properly.

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1. Appendix - II, Table No. 10.

(b) Time Table :

There is a provision of atleast three periods for junior class(VI to VIII) and two periods for higher secondary classes, per week, in time table for physical training[1], but it has been observed that the same has not been followed strictly, and if followed, the time is not utilised properly in the absence of adequate playing facilities.

(c) Literature on sports :

A limited number of books are available only with 16% of colleges, which have been purchased only once. Monthly magazines on games and sports have not been subscribed to, by any college[2].

(d) Health facilities :

There are no facilities for health services available in any college inspite of the fact that a medical fees of 6 paise is charged from every student per month (except students belonging to scheduled castes and the free, and half-free students). As a rule a medical history-sheet of each student is to be maintained in all colleges[4], but this has not been done even in a single college

(e) Maintenance staff :

One mali (gardener) in 88%, and two in 12% colleges are available whose duties are to maintain all

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1. Appendix - I, Para 3(a).
2. Appendix -II, Table No. 10.
3. Appendix -II, Table No. 10.

play grounds; however in most colleges these persons are deputed for work other than the actual - one for which they are employed.

(f) Maintenance Equipment :

Equipment such as grass-cutting machine and roller etc. are not available in any college.

Views of various Principals, Physical Training Instructor and Students.

During the visit the author had discussions with the heads of institutions, members of the staff and students in general, regarding problems of games and sports and some suggestions made by them are listed below :-

(a) Government or State's Education Department should have a regular grant for sports funds, according to the needs of each institution, based on its strength.

(b) Games, sports and physical education, should be made compulsory for each student and attendance in this must be strictly observed.

(c) Games, sports and physical education, should be given equal importance like other subjects of study and marks may be allotted to the same which could be added in the final marks.

(d) Promising players and sportsmen should be given some incentives.

(e) Facilities for all games and sports in which competitions take place, should be provided to every student.

(f) Inter-class tournaments in every college in different games, and inter-college tournaments at city and block level should be arranged, regularly, every year.

CHAPTER - IV

ANALYSIS OF FACILITIES FOR REQUIRED STANDARDS

ANALYSIS OF FACILITIES FOR REQUIRED STANDARDS :

The human mind associates similar things to each other and also evaluates them. For this purpose there are certain yardsticks or units laid down to measure the performance characteristics of all things. The measure of these yardsticks become standards, when acceptable to considerable extent. The standards are tried and accepted measures or the laws made to govern self.

> " That simplified practical exampler of anything in general use which embodies a fusion of the best of its interior from a fusion preceded by elimination of the personal content of their designers and all other-wise ungeneric or non-essential features". .. Walter Gropius.

Standards are useful because :-

(i) They provide the basis for comparison.
(ii) They specify the performance requirements.
(iii) They lay down the requirements of safety.
(iv) They provide the aspect of inter changeability.
(v) They reduce the variety and reduce the confusion.

For uniform development of the educational (including physical education) and recreational facilities standards may play an important role in achieving the required level. The standards for physical education facilities (in terms of space standards) to be provided in intermediate colleges are the direct concern of architects.

4.1 STANDARDS LAID DOWN BY VARIOUS AGENCIES :

(a) Size of Intermediate College (Higher Secondary School

Standards for the size of a college in terms of strength of students are laid down by different organisations and agencies. In some states these intermediate colleges are known as higher secondary schools. Standards laid down by various agencies are as follows :

Sl. No.	Agencies/Organisation		Strength
1.	Town planning organisation (Union Ministry of Health).	..	750 students optimum.
2.	National building Organisation.	..	960 even higher in cas of export management.
3.	Central schools A	..	720 Maximum
	B	..	480
	C	..	240 Minimum
4.	Committee on Plan Projects.	..	650-16 sections.
	Delhi school buildings Government of India, 1960.	..	1000 - 25 sections.
5.	The Central Advisory Board of Education (Ministry of Education 1956) Government of India.	..	480
6.	U.P. Education Department	..	250 to 2000 (derived from survey. There is no upper and lower limit fixed in education code, Department of Education, U.P.)

7. Ministry of Education U.K. .. 600

8. U.S.A. .. Upto 6000

(b) Space Standards for Play Grounds.

(i) UNITED STATES OF AMERICA AND GREAT BRITAIN.

Sl.No.	Particular	U.S.A.	Great Britain
1.	Elementary schools	.. 5 acres	3 acres
2.	Middle schools	.. 10 "	5 "
3.	High Schools	.. 20 "	8 "
4.	Colleges	.. 30 " and above	10 " onwards

(ii) INDIA.

Sl. No.	Agency/Organisation	Area
1.	N.M.C.A. (H.C. Buck)	
	Elementary schools	.. 1 to 2 acres
	Middle schools	.. 7 acres
	High Schools	.. 12 acres
	Colleges	.. 12 acres and above
2.	Central Advisory Board of Education in India.	
	Primary schools	.. 100 to 200 sq.ft. per pupil.
	Secondary schools	.. 250 to 500 sq.ft. per pupil.
	Colleges	.. 500 to 1000 sq. ft. per pupil (6 to 7 acres for 480 pupils

3.	Bombay Government	.. 1 acre for every 250 pupils.
4.	Bombay Physical Education Committee's (1945-46) Recommendation.	.. 3 acres for first 250 pupils and for every additional 250 pupils - 1½ acres.
5.	The Ad-Hoc Enquiry Committee on Games Sports, Ministry of Education, Government of India 1959.	.. 5 to 6 acres (500 to 1000 pupils).
6.	Report of the Seminar for State Inspectors, U.G.C.1958.	.. 5 acres.
7.	Panel on school buildings by the Government of India.	.. 2 acres (one football field for 960 pupils).
8.	Report on Higher Secondary School building, N.B.O.	.. 2 acres (one football field for 960 pupils).
9.	Central School Building, Norms and specifications.	.. 2 acres (720 pupils).
10.	Planning (The Architects Hand Book) by E. & O.E.	.. 10½ acres for 600 pupils.
11.	Education Department, U.P. State. Junior High School	.. 2 acres - rural) Required 1-½ " - urban) at time of granting recognition. There is no specific mention of area for play fields for intermediate colleges.

12. Master Plan of Delhi .. 2 acres for 2(two) Higher Secondary schools (one football field only).

(111) THE STANDARDS FOR THE FULL PLAYING SPACES AND NECESSARY SURROUNDINGS AREAS REQUIRED FOR VARIOUS GAMES

(1) Organisation of Physical Education (for schools in India) by Joseph, P.M.

Table of space requirements

Name	Dimensions of play area	Use dimensions	Space required Sq. ft.	No. of players
Badminton	44'x20'	53'x20'	1650	4
Basketball	50'x94' (max.) 42'x74' (min.)	60'x100'	6000	10
Cricket	450'x450'	500'x450'	225000	22
Field Hockey	150'x270'(min.) 180'x300'(max.)	200'x350' (Average).	70000	22
Kabbaddi	33'x 42'	45'x15'	2475	14
Kho-Kho	111'x61'	120'x60'	7200	18
Football (Soccer)	150'x300'(min.) 300'x390'(max.)	240'x360' (Average)	86400	22
Lawn Tennis	36'x78'	56'x114'	6384	4
Table Tennis	9'x5'(table)	30'x20'	600	4
Volleyball	60'x30'	75'x40'	3000	12

(2) Planning By E. & O.E.

Name	Area sq.ft.	No. of players	Area per player sq.ft.
Football (soccer)	108000	22	5000
Hockey	64000	22	3900
Lawn Tennis	7200	4	466

(3) Time Saver Standards

Physical Recreation	Area (Sq. ft.)		
	Acceptable minimum	Average	Usual maximum
Swimming Pool	1500	2625	9900
Beginner's Pool	600	1000	-
Basketball	5000	6000	-
Boxing and wrestling	600	1000	2000
Social dancing	As desired		
Field hockey	37500	57600	73500
Lawn Tennis(per court)	7200	7200	-
Volleyball	2800	-	31000
Football (Soccer)	-	86400	-
Cricket	-	138545	-

(4) Standards for gymnasium

Sl.No.	Agency/Organisation	Area
(1)	Organisation of physical Education (for schools in India) by Joseph, P.H.	60'-70'x30' to 40' (covered floor space) Height - 15'.

(ii)	Organisation of Physical Education by Thomas, J.P.	45'x60' (min.) 50'x80' (med.) 60'x90' (max.)	for High school.
		100'x150'(med.) (floor space) Height 20'x22' or floor space of @ 50 sq.ft. per user.	for college.
(iii)	Planning by E & O.E.	70'x40'(floor space for 30 students). Height - 18'.	
(iv)	Playing field Manual, by the National Institute of Sports, Patiala.	25 m x 13m x 6 m (covered 40 m x 30m (open air).	

4.2 FACTORS AFFECTING THE LAND (SPACE) REQUIREMENTS.

4.2.1 Size of the College

The students are the main elements of the classes, which in turn are the constituent units of the college. The environmental centre, constituted by a number of elements in the form of various groups and units, to perform the required activities of teaching and learning, is called the college/ school.

Its dimensions and magnitude will limit the performances of activities, intake and output, in terms of number of students. The size of the college may be expressed in

terms of the strength of the students and physical dimensions of the piece of land on which it exists. The size of the college may be arrived at by considerations, (a) either, of the population which it has to serve, or (b) the efficiency of the teaching and learning to be achieved. In both cases the physical requirements of the college-size will largely be governed by the type of educational activities or the subjects to be tought. These are not, of course, free from the effects of emotional factors and finances, changing in due course of time.

All the activities as well as the spaces are dependent on the number of the students to be enrolled in a particular college. The spaces, facilities, and students may be called interdependable or the function of each other. Either, the facilities may be provided for a particular number of students or the number of students is fixed on the basis of the facilities existing in the college. The participation of students (in terms of numbers) in any activity of games and sports, will mainly depend upon the total number of students enrolled in college; and facilities (in terms of outdoor space for play grounds, and the number of grounds for each game) to be provided will be governed by the number of participants.

Considering all aspects, the size of a college, for which studies for games and sports facilities are to be undertaken, has been assumed as follows[1]:

(a) Total number of students .. 600

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1. Thesis Report of Sh. Nehrulal, on Intermediate Colleges Buildings and Land Standards (with special reference to Meerut Division), University of Roorkee, Roorkee (1972).

(b)	Sections in each class	i) VI to VIII	.. 10 sections.
		ii) IX & X	.. 6 sections.
		iii) XI & XII	.. 4 sections.
		Total	.. 20 sections.
(c)	Students in each section		.. 30 to 40

4.2.2 GAMES AND SPORTS PROGRAMME (TYPES OF ACTIVITIES) FOR VARIOUS CLASSES.

(a) List of items for boys in which competitions take place in intermediate colleges.

Zonal, District and Divisional (Regional) competitions and tournaments are held regularly every year among students of all colleges of Meerut Division and the following items are included in the list in which competitions take place :

(1) Games A. Outdoor games

B. Indoor games

A. Outdoor games

i) Hockey
ii) Football
iii) Volleyball
iv) Basketball
v) Cricket
vi) Kabbaddi
vii) Kho-Kho
viii) Swimming
ix) Gymnastics.

B. Indoor games

i) Badminton
ii) Table tennis
iii) Wrestling

(2) Sports A. Athletics

B. Miscellaneous

A. Athletics

Races	Senior	Junior
	100 metres	100 metres
	200 "	200 "
	400 "	400 "
	800 "	4x100 " relay.
	1500"	
	100 " high hurdles	
	4x400 metres Relay	
	4x100 metres Relay	
Jumps	Long jump	Long jump
	High jump	High jump
	Pole vault	
	Hop-step and jump	
Throws	Shot-put	Shot-put
	Discus	
	Javelin	
	Hammer	

B. Miscellaneous

i) Physical training (P.T.) including drill.

ii) Fancy drill, lezim and dumb-bell.

iii) Lathi, gadka and malkhamb

iv) Scouting

v) Best physique.

4.2.2 (b) Programme suggested by the Author.

Skill and perfection in action are two important requirements for any event in games and sports. To develop skill and perfection, a scientific training programme, from the very beginning is essentially be adopted for boys/girls, otherwise there is more likelihood of picking-up some wrong techniques which would not be possible to remove at later stage, and these defects would remain for ever.

" A comprehensive, educationally-sound programme of physical education is not confined to a consideration of the principales discovered by a study of physiology and anatomy alone. But in addition, it accepts and applies the facts revealed by psychology, sociology, anthropology and allied sciences. Its values are attitudes and skills useful and acceptable through out life, plus the necessary comcomitants of health and presentable physique. In short physical education must not be thought of as a therapeutic measure but education," said the late Buck, H.C. of the Y.M.C.A.

There are some activities, games and sports which are necessarily to be adopted and practised by every player, and sportsmen, irrespective of the events, in which they want to achieve perfection, to have good physique, organic condition and motor abilities.

Keeping all the above discussed points in mind, a programme can be formulated upon the following guiding factors:

(a) The inherent interests and desires of the participants: As every normal child wants to express himself through play, so also, every normal person must have this

expression through sports if he is to develop and maintain his normality.

(ii) The needs of the participants :

The needs may be either functional, structural, or psychological, or all of these. The programme must, therefore, make ample provision for maintaining and improving the fundamental physical skills of man.

(iii) The physiological or health values of the activities :

Some physical activities have a greater physiological effect on the body than others.

(iv) The social values of the activities :

The present day social order requires citizens of good character, and those possessing good social conduct. A good-society is made up of people possessing a sense of justice, and fair play; a spirit of co-operation, and loyalty to worth-while causes; initiative, courage, and physical, mental and moral stamina.

(v) The carry-over values of the programme :

The modern physical education programme must include not only activities that will result in skills, but also those that enable people on their own initiative to find satisfying and wholesome physical recreation during their leisure time.

Keeping in view the above discussed points, the aims, objectives and importance and requirements of to be a good player and sportsman, the following programme is suggested.

Two groups are made according to the age of students and their respective classes, which are as follows[1]:-

I.	Division-I	Class VI Class VII Class VIII	: 11 to 13 years of age.
II.	Division-II	Class IX Class X Class XI Class XII	: 14 to 17 and 18 years : of age.

ACTIVITIES

These can be devided in seven different groups :

Group I : Developmental exercises and activities (P.T.)

Group II : Rhythms.

Group III : Combatives.

Group IV : Games.

Group V : Athletics.

Group VI : Aquatics.

Group VII : Gymnastics.

DIVISION (CLASS) WISE PROGRAMME

DIVISION - I (CLASSES VI, VII AND VIII).

Group I : Developmental exercises and activities

(A) Exercises

(B) Pyramids

Group II : Rhythms

(A) Lezim

(B) Dumb-bell

(C) Fancy drill

(D) Marching.

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1. Based on the syllabus of Physical education for boys, National Plan of Physical Education and Recreation, Ministry of Education, Government of India (1962).

Group III : Combatives.

(A) Simple combatives

(B) Wrestling

(C) Lathi

Group IV : Games.

(A) Simple games

(B) Lead-up games

Group V : Athletics.

(A) 50 metres Dash

(B) 60 metres hurdles

(C) 100 metres dash

(D) 400 metres dash

(E) Jumps

(F) Throws

Group VI : Aquatics.

(A) Swimming

(B) Diving

Group VII : Gymnastics.

(A) Parallel bars

(B) Vaulting box (Horse)

(C) Beams

(D) Roman rings

(E) Ropes

(F) Wall bars

(G) Spring board

(H) Pommel horse

DIVISION - II (CLASSES IX, X, XI AND XII).

Group I : Developmental exercises and activities.

(A) Exercises

(B) Pyramids

Group II : Rhythms (for classes IX AND X only).

(A) Lezim

(B) Dumb-bell

(C) Fancy drill

(D) Marching.

Group III : Combative.

(A) Wrestling

(B) Lathi

(C) Jambia

(D) Pari gadka

(E) Judo

Group IV : Games.

(A) Lead-up games (for classes IX &

(B) Individual games - Table tennis, Badminton and Tennis.

(C) Team games - Hockey, football, volleyball, basketball, cricket, kabbaddi and kho-kho.

Group V : Athletics.

All items of Athletics which are included in athletic meet for intermediate colleges in Meerut Division, given previously in this chapter.

Group VI : Aquatics.

(A) Swimming

(B) Diving.

Group VII : Gymnastics.

(A) Parallel bars

(B) Horizontal bars

(C) Vaulting box (horse).

(D) Pommel horse

(E) Beams

(F) Roman rings

(G) Ropes

(H) Wall bars

(I) Spring board

(J) Weight lifting.

Mass Physical Training

There will be a programme for mass Physical Training for whole of the students of the college, once a week, in which all classes will take part collectively.

4.2.3 Types of Apparatus And Equipment to be used.

The richness and variety of a programme is conditione a great deal, by the type and quantity of equipment and apparatus which are available. There is no doubt that we can have many interesting games and activities without any equipment. The availability of some equipment and apparatus act as an incentive to participants. Equipment add to variet With equipment, different kinds of skills can be practised, skills which, when acquired, will lead to greater satisfaction. A ball, a bat or a jumping board induce participation.

These equipment and apparatus are of two types :-

(1) Equipment, which are necessarily required for playing a particular game, such as hockey sticks, football, racquets and balls, without which one cannot play a game, as hockey cannot be played without a hockey-stick and ball.

(2) Training equipment : Some equipment are necessarily required for practising and developing skills in a particular game or event; as wall is required in tennis for wall practice, to develop correct skills.

These above mentioned equipment may be of two types:

(i) Those, which are more or less of a permanent nature, e.g. goal posts, net posts, wall bars and parallel bars etc. These are needless of frequent replacement.

(ii) Those, which are of an easily wearing out and destoryable type, such as nets, balls, shuttles, racquets and hockey-sticks etc.

List of equipment and apparatus

(1) Equipment required for playing : The list of various equipment required for playing is given in Chapter-II (3.1), p. 52 and 53.

(2) Training equipment : These equipment are required only for some selective games, and to develop some particular skills :

(a) Hockey
- i) Apparatus for kicking practice for goal-keeper.
- ii) Apparatus for dodging practice.
- iii) Apparatus for flicking practice.
- iv) Apparatus for dribling and ball control

any effect on the size of ground and ultimately, on over all space to be provided for that particular game, except hockey in which the side clearance will depend upon the size of hockey, upto some extent, when a player either hitting the ball just at the side boundary line of the field or making a pushin.

In Athletics, equipment have their role for determining the size of the running track. Safety distances, for the spaces for equipment for throwing like; Javelin, Discus, Shot-put and Hammer have to be kept in mind and at the time of formulating the standards for running track. It is also to be kept in mind that facilities for each event of sport has to be provided within the area of running track, as a rule. Spaces (including safety distances) to be provided for each item of throws will depend upon :

(i) Nature of throw.

(ii) Maximum reach (record) of the equipment.

(iii) Extent of injury in case of any accident.

(iv) Clearance from other events.

(v) Number of events going on simultaneously.

Equipment to be used for gymnastic, their size and the way in which these are used, will govern the size of space to be provided for gymnasium because :

(i) Most of the equipment will be fixed at their proper places for use, either on walls, floors or suspended from the roof, according to the requirements of their use, during the period of activities.

(b)	Football	i)	Apparatus for heading, trapping, kicking and goal-keeping practice.
		ii)	Apparatus for accurate and different types of kicking techniques.
(c)	Tennis	i)	Apparatus for correct and accurate placing and smashing the ball.
(d)	Volleyball	i)	Apparatus for correct and accurate placing and smashing the ball.
(e)	Gymnastics :		All equipment and appratus of gymnastic are not used only by the gymnasts but to be used by all players, and sportsmen, for weight Braining etc. as gymnastic is a basic game and its facilities should be provided in each and every college.

Effects of various equipment and apparatus on the space requirement for their respective games and sports are as follows :-

(1) Equipment required for playing.

Equipment, required for playing for all team games like; football, hockey, volleyball, basketball, cricket, kabbaddi, swimming, badminton and tennis do not have any effect on the sizes of play fields and courts. The minimum, maximum and average sizes of all play fields, and courts are standarised, which cannot be changed, and play field or court for a particular game has to be provided of standard size. Equipment for all games are used personally by every player, and are portable, and their sizes do not have

(ii) Most of the equipment are not portable and as such cannot be removed or shifted easily and frequently, because of some specific reasons.

(iii) Each student will do his work independently, and will move either way, without any restriction.

(iv) Gymnasium shall also be used for the practice of wrestling, on mat. Equipment to be used for this item shall also effect the size of gymnasium.

(v) Type and nature of exercises to be done will also effect the space requirement.

Equipment, to be used in Rhythms like; hoops(ring) will effect the space, to be provided for Rhythms, to keep the required clearance from one student to the other, and all around.

In combative items space standards shall be effected by the lathi, when it will be used for exercise, keeping in the mind, the clearance to be provided from one student to the other, and all around.

(2) Training Equipment

Equipment to be used for training and developing skills in a particular game and sport shall effect the size and standard of space to be provided. The following factors will effect the size :

(i) Size of equipment.

(ii) Nature of exercise to be done.

(iii) Clearances to be provided from one equipment to the other for safety, and obstructions reasons.

4.2.4 Grouping of Activities for which a common space can be provided.

Grouping of activities, for which common space can be provided, can be done only in case of few activities. It is not possible to provide only one or two common spaces for all the activities because of the following reasons :-

(i) In case of common space more than one or two activities cannot be performed or arranged, simultaneously, if required to do so.

(ii) Qualities and standards of playing surfaces, to be maintained for various activities, differ from activity to activity. As hockey cannot be played in football ground because of the uneven-ness of the football ground.

(iii) Because provision of minimum safety distances has to be made from one game to the other.

(iv) Minimum acceptable sizes of play fields or courts have to be maintained and provided for some games and sports.

A common space can be provided for the following activities :-

(1) Mass Physical Training, Rhythms and Combative Exercises.

No separate space is required for these activities as space provided for athletic track, football and hockey grounds shall be utilised for mass physical training, Rhythms and Combative activities. This is possible because at the time of mass physical training in which whole of the students will take part, no other activity will go on, on any of ground and the

surface of the ground will also not be spoiled as all students and instructors will be in P.T. shoes.

(ii) Athletic Events:

An Athletic track will be provided of such a size that all the athletic events can be held within the space provided for the track. There will be no need for providing any separate space for any athletic events outside and away from the space provided for athletic track for running.

(iii) Gymnastics and Wrestling :

Gymnastic's equipment and mat for wrestling can be provided together, in one common space as gymnastic equipment are frequently used by a wrestler for practice and the mat by the gymnasts.

(iv) Training Activities :

A common area for training equipment of hockey, football and volleyball, to develop skills, will be provided, as the equipment for training for all these games are of similar types and nature, and there will not be any chance of injury to the players doing practice simultaneously.

4.2.5 Area Required for Clearance.

Apart from the actual area required for play, additional space is required all around each field and court for:

(i) Space for assembly of players.

(ii) Space for circulation and movement of players.

(iii) The minimum distance or gap is required between two grounds or courts for safety and to avoid any

CLEARANCE

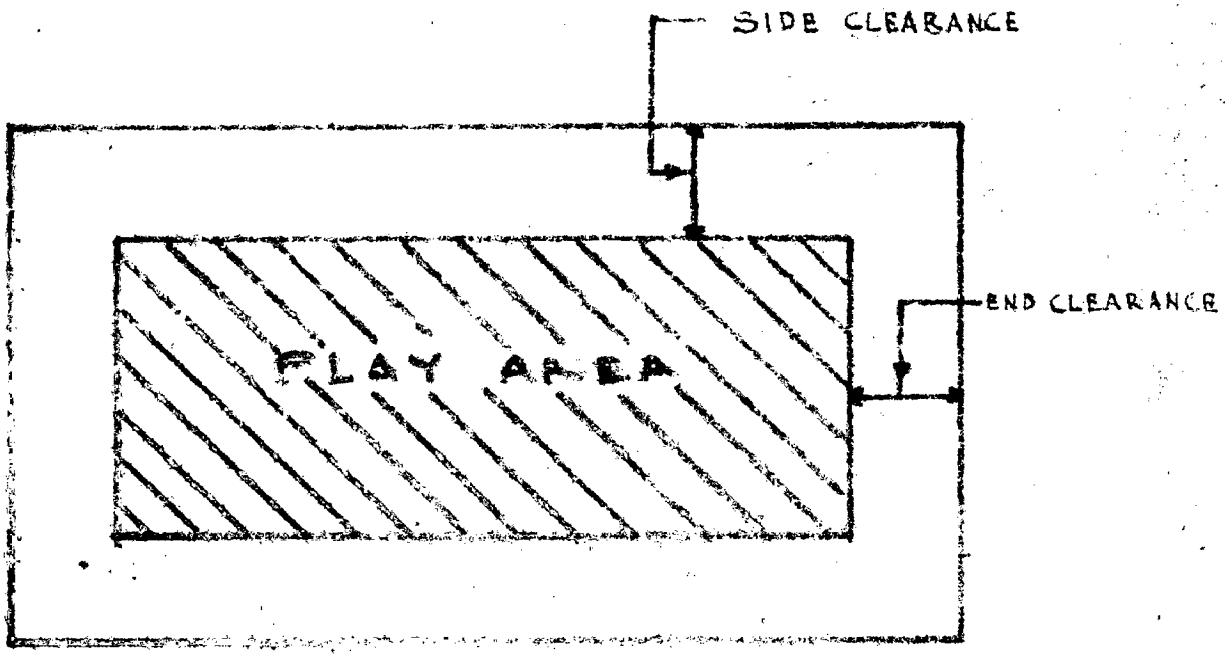


FIG NO: 4.2.5.2

accident or conflict among players, playing games on the adjacent field or court.

(iv) To keep minimum buffer space (zone) between players and spectators for fair and accident's free playing.

(v) Sometimes, the nature of pay requires additional free space all around ground or court to perform the play as in case of volleyball, second and third touches are allowed to cross the ball to other court, in case if the ball is diflected after the first touch by a player. This additional space provides fair chances to a player to run to control the deflected ball.

These types of spaces are known as the clearance (Fig. No.4.2.5.a).

Keeping in view and taking into consideration, the total area required for field or court will include :-

(i) Actual play area (Size of field or court).

(ii) Area (space) required for clearance all around a field or court.

Amount of area (space) required for clearance (assembly, movement and buffer zone) will depend upon activity to activity, denending upon number of students who will take part, and the manner, technique or system of play.

4.3 Space Standards For Various Activities Based On Analysis.

Systemetic and rational analysis of elements and components of various activities, included in games and sport programme, as suggested, the list of items and competition and their inter-relationship, as discussed in previous

chapters have revealed that the total space required for play fields for an intermediate college will depend upon the space required, for individual activities and then summing up of all these areas. Taking into consideration the grouping of various activities for which common space can be utilised, and based on other points discussed in previous chapters, the individual space will be required for the following activities in the college, and space standards are formulated as required:

(A) Games

(1) Out-door team games (field).

(i) Hockey, (ii) Football, (iii) Cricket.

(2) Out-door team games (court).

(i) Volleyball, (ii) Basketball, (iii) Kabbaddi, (iv) Kho-Kho.

(3) Out-door Individual games (court).

Tennis.

(4) In-door individual games.

(i) Badminton, (ii) Table tennis.

(5) Individual games.

(i) Wrestling, (ii) Gymnastics, (iii) Swimming.

(B) Sports

(1) Athletics - Including all items which are included in sports, competition programme.

(C) Physical Training Area

(D) Training Area for Training Equipment.

(i) Hockey, (ii) Football, (iii) Volleyball, (iv) Tennis.

Based on above items and activities the fields, courts

and open space will be provided for the following activities:-

(i) Hockey
(ii) Football
(iii) Cricket
(iv) Volleyball
(v) Basketball
(vi) Kabbaddi
(vii) Kho-Kho
(viii) Tennis
(ix) Badminton
(x) Table tennis
(xi) Gymnastics(including space for wrestling)
(xii) Swimming
(xiii) Athletic track
(xiv) Training area.

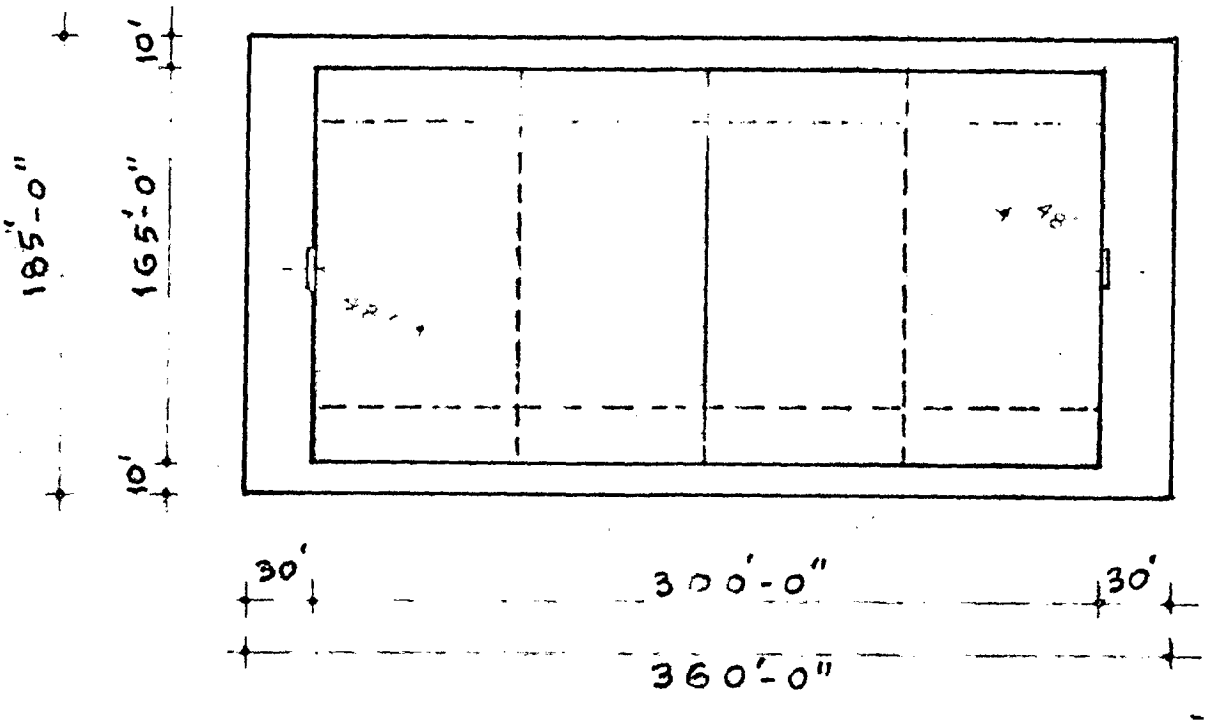
(i) Hockey

A team game, and played by two teams of not more than eleven players each. The usual constitution of a team is five forwards, three half-backs, two backs and a goal-keeper.

Unless otherwise agree upon mutually by the respective Captains before the match, the duration of the game shall be two periods of thirty five minutes each. At half-time the teams shall change ends and the duration of the interval shall not exceed five minutes, unless otherwise agreed upon by the Captains before the match.

Taking into consideration that one class of 30 students will be availing the facilities of hockey ground at a time, one hockey ground is sufficient, as 22 students will play the regular game and remaining 8 students will go for learning the tactics, and techniques and will utilise apparatus and equipment to improve skill, provided in the training area. The ground shall be utilised for daily practice

HOCKEY GROUND



AREA OF ONE GROUND = 165' x 300' = 49,500 SQ.FT.
TOTAL AREA REQD. FOR ONE GROUND INCLUDING
CLEARANCE = 185' x 360' = 66600 SQUARE FEET.

FIG. NO. 4.3.a

and as well as for conducting matches, also.

The ground has to be rectangular as a rule, and the size of the ground for play varies from 150' x 270'(minimum), 180' x 300' (maximum). Generally a ground of 200' x 350' is taken for international matches.

Keeping in mind the age (11 to 18 years), physical standards and the amount of fatigue, a student can sustain, the size of ground be taken as 165' x 300' for an intermediate college. This size of ground is only of play area.

Side and end clearances are also required all around the actual play ground for :-

(a) To ensure that there should not be any disturbance to the players while playing, from the spectators.

(b) To ensure the safety of spectators against any injury by the hockey-stick of a player, running and hiting the ball just on the boundary line of the ground.

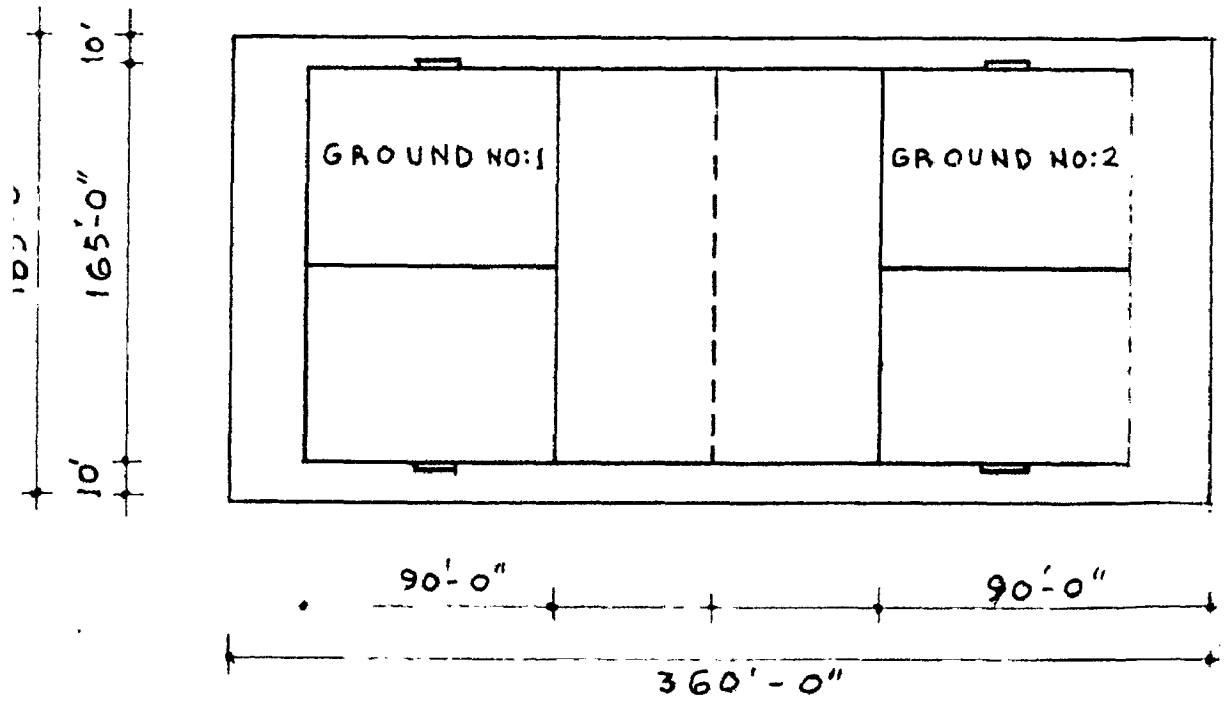
(c) To ensure the safety of players against any injury which may occur due to collision with the spectators, watching the game.

(d) To provide some clear and unobstructed space all alon the side and end lines of the ground for body control of the player, who is running fast to catch an outgoing ball.

(e) A low net is provided all-along the ground including clearances, to stop the ball for causing any injury to the spectators.

It has been experienced that for side boundaries 10' wide clear strip all-along the boundaries on both the sides i

HOCKEY GROUNDS
(SIX-A-SIDE)



ARRANGEMENT FOR TWO SMALL GROUNDS 165' EACH WITHIN THE GROUND 165'-0" x 300'

FIG. No. 4.3. b.

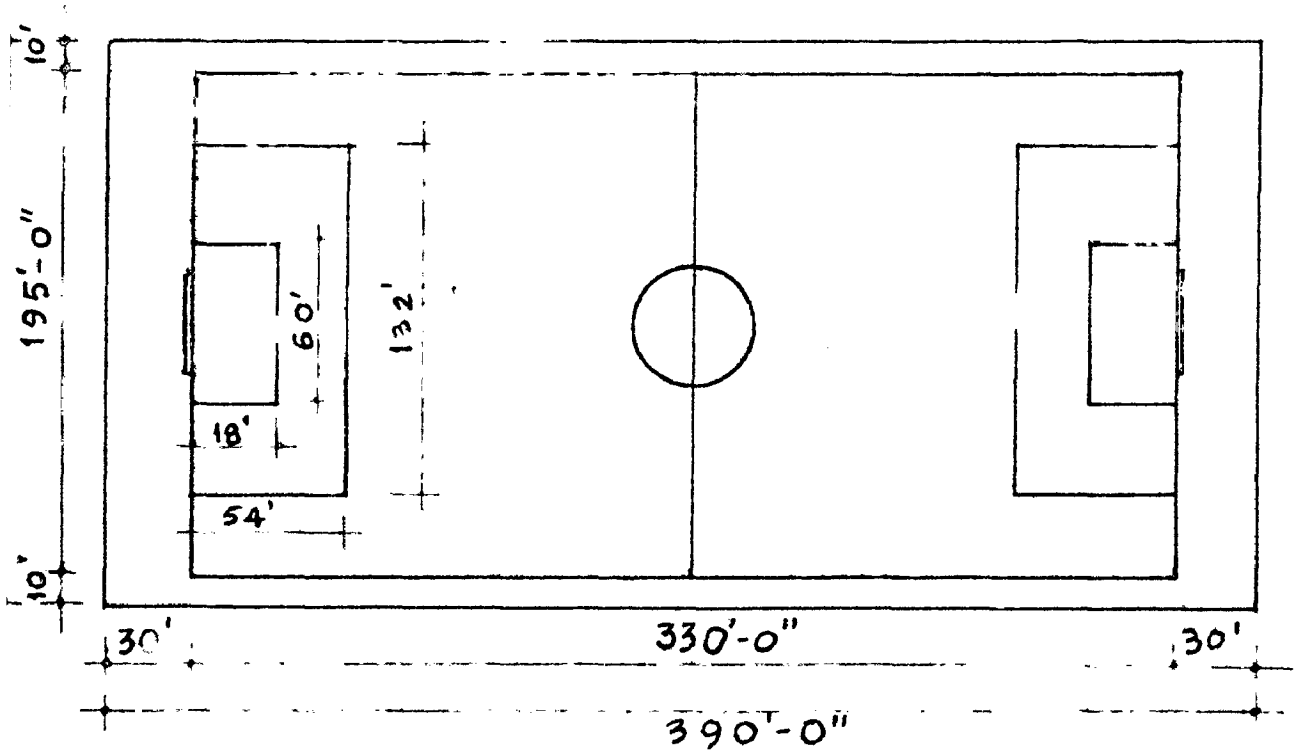
sufficient, including 7' wide strip required for a player for making push-in or for hitting the ball when it is just on the boundary line.

Clearance to be provided on both the ends (goal-lines) depend upon the space required for a player from the end lines, within which his speed goes down from maximum to minimu-m(zero) It has been experienced that when a player runs at his maximum speed to control a ball, going out-side the field on either ends (goal-line) of the ground requires 10 yds. (30') fromthe last edge of the end line to control his speed and body. The maximum time play takes place along with the longer sides of the ground as both the teams try to score the goal against openents, so the maximum speed is gained by a player during game, will be when one runs towards the either goal side, and thus the clearance required on both the end (goal-line) will be more, and that works out to 30',on each end (Fig.No.4.3.a)

Need not to provide separate space for the assembly of the players as the space provided for clearances is sufficient for this purpose. Thus an over all space required for a hockey ground works out to be 165' x 360' = 66,600 sq.ft.

This hockey ground measuring 165'x300' may be devided in two hockey grounds six-a-side each (for twelve players each for learning the correct technique and developing the skill as in small ground better ball control may be learned. These six-a-side ground may also be utilised for the students of small age group (11 to 13 yrs.). The size of each six-a-side ground is to be 165' x 90' may be arranged in the way shown in Fig. No.4.3.b.

FOOTBALL GROUND



AREA OF ONE GROUND = 195' x 330' = 64350 SQ.FT.
TOTAL AREA REQD. FOR ONE GROUND INCLUDING CLEARANCE = 215' x 390' = 83850 SQUARE FEET

FIG. NO. 4·3·C

(11) Football

A team game, and played by two teams of eleven players each. Theduration of the game shall be two equal periods of 45 minutes, unless otherwise mutually agreed upon. At half-time the interval shall not exceed five minutes except by consent of the Rafree.

One football ground is to be provided, taking into consideration that one class of 30 students will take part at a time. 22 students can play as two teams and rest of 8 students will go for training in skill, and technique through equipment, and apparatus, provided in training area. The ground shall be utilised for daily practice as well as for matches also.

The ground has to be rectangular, and size varies from 150'x 300' (minimum) to 300'x390' (maximum). The average size of the ground for mostly matches is 200' x 350'.

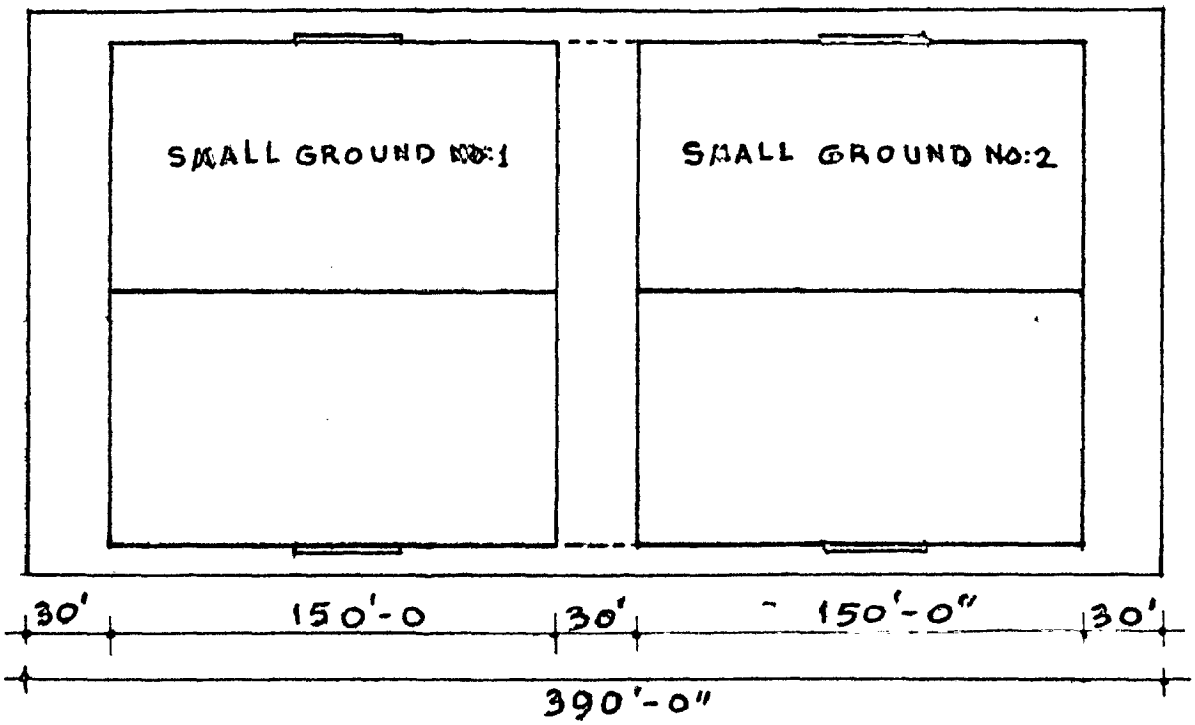
In an intermediate college, keeping in mind the age (11 to 18 yrs.), physical standard, and the amount of fatigue a student can sustain a ground of 195'x330' is to be provided. This area is only for play (Fig. No.4.3.c.) .

Apart from the play area, the side, and end clearances are also required all-around the actual play area (ground)for-

(a) To ensure that there should not be any disturbance to the players from the spectators, while playing.

(b) To ensure the safety of spectators against any injury by the football boots of a player running or kicking the ball just from the boundary line of the ground on approaching fast to control the out-going ball.

FOOT BALL GROUNDS



ARRANGEMENT FOR TWO SMALL GROUNDS 195' x 150' EACH WITHIN THE STANDARD GROUND 195' x 330'

FIG. NO. 4.3.d

(c) To ensure the safety of players against any injury which may occur due to collision with spectators, watching the game.

(d) To provide some unobstructed, and clear space all-along the side, and end lines of the ground for controlling the speed by a player while running fast to catch an out-going ball.

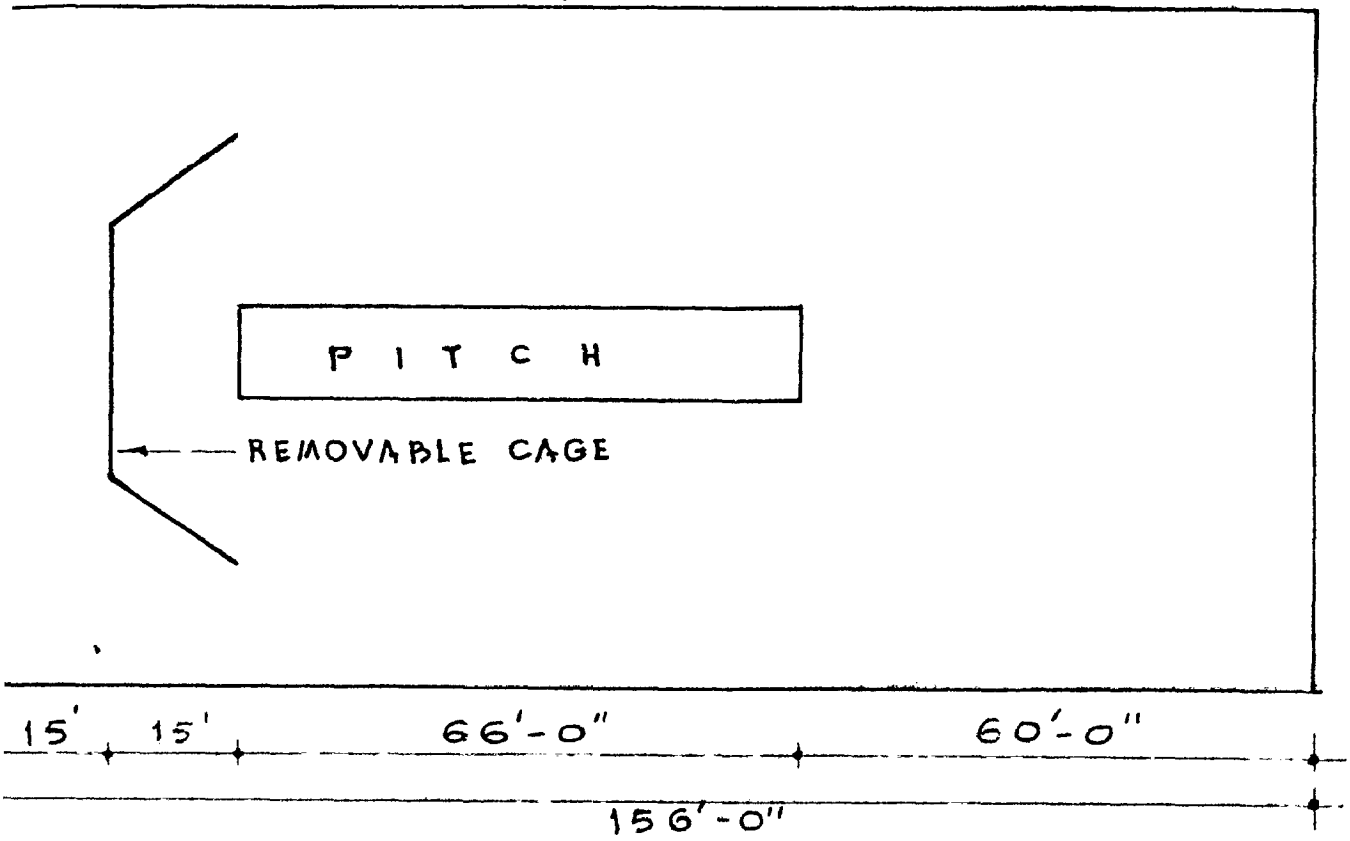
It has been experienced, and noticed that for side boundaries 10' wide clear strips all-along the boundaries on both the sides is required for making throw, body control, and safety precaution against any accident.

For end clearances, the speed of the player at which he is running, and the distance within which it can be brought to minimum (zero) is the main criteria. It is experienced, and seen that a distance of 30' is required from the last edge of the boundary line within which a player can control his body when running at his fastest speed. So a strip of 30' is to be left on both side of the end boundary line (goal-line) of the ground. Most of the time, the play takes place in the longer direction of the ground as both the teams try to score the goal on oponents. So end clearance will be more as the maximum speed will be gained by a player only in this direction(Fig.No. 4.3.c).

This space provided all around the ground will also be used for the assembly of the players. Thus, the total area required for a football ground worked out is 215'x390'=83,850 sq.ft.

This football ground measuring 215'x390' may be divided in two football grounds, each measuring 195'x150' for small

CRICKET



AREA OF ONE PITCH = $10' \times 66' = 660$ SQ.FT.

TOTAL AREA REQ'D. FOR ONE PITCH = $80' \times 156'$

$= 12480$ SQ. FT.

FIG. NO. 4.3. e.

age group (11 to 14 years) students, and for learning the correct technique, and developing the skill, as in a small ground batter ball control and other skills are easy to learn. This is one of the most strainous game. These small grounds may be arranged in the way shown in fig. No.4.3.d.

(111) Cricket

This is a team game, and played by two teams of eleven players each side. Duration of the match depends upon the standard of the team and the rules laid down by the different organisations.

Availability of pitch is an important point. The standard size of the full size pitch is 10'x66' and for practice the pitch may be of 10' x 36' only. In an intermediate college, a full size pitch is sufficient as it will serve both the purpose of match as well as of daily practice.

Daily cricket practice is usually done only in a small area, and not in full size ground. A removable Cage (ball net) to stop the ball to avoid unnecessary running to collect ball, and to make the play more fast, is fixed on the back side of the wicket-keeper.

A clearance of 15' in between the wicket, and the cage is required for the free movement of wicket-keeper and another 15' clearance is required on the back-side of the cage. An unobstructed space of 60' from the another edge of the pitch is required for the bowler to run for bowling.

Space of 15' on both sides of the cage is to be provided, for the clearance, for players to run to catch the ball hit by the batsman. It is experienced that during

practice the cricket ball does not travel so fast, and it is possible to control it within an area of 35' on either side of pitch. Thus, a total space of 80'x156' = 12480 sq. ft. is required for a cricket pitch which shall be utilised for match as well as for practice (Fig. No. 4.3.e.).

A separate ground, required for cricket match, measuring 450'x450' is not to be provided as the pitch shall be located at such a place that open space of 450'x450' is available from hockey, football and athletic track. For practice, full cricket ground is not required, and a space of only 80'x156' is required. At the time of cricket match, no other activities will be going-on on the ground so spaces of hockey, football and athletics ground shall be utilised for cricket ground.

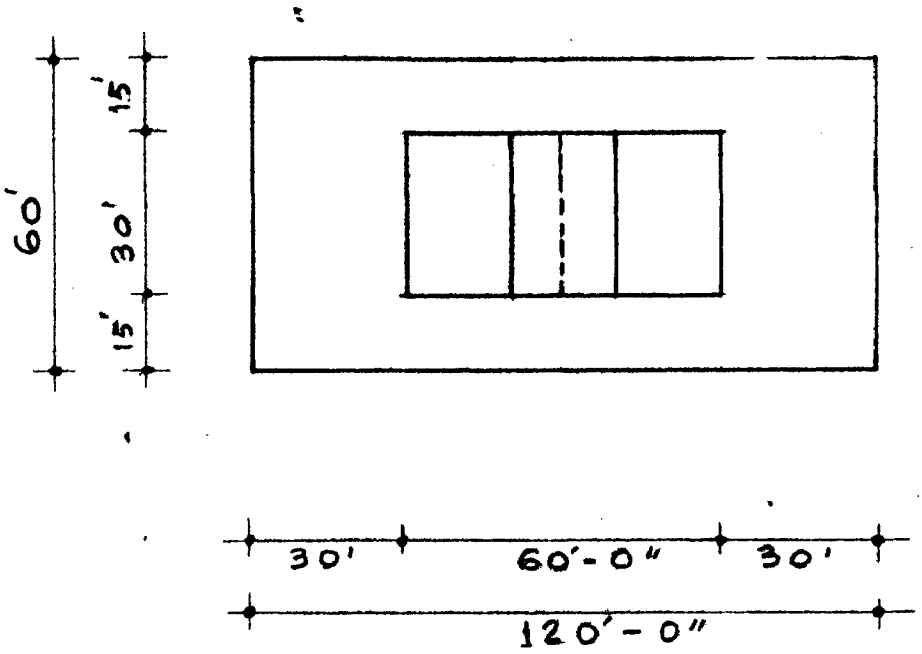
(iv) Volleyball

This is the team game and basically an indoor game for European countries. In India, it is treated as an out-door game and played in open courts. It is played between the two teams, having six-players in each team. Match is played on best of three or best of five games basis between the two teams. It is a net game. Court of standard size, measuring 30'x60' is required for play, and there must not be any obstructions upto 30' height in the space (air) over the court.

In an intermediate college two standard size (30'x60') volleyball courts are to be provided out of which one is for beginners and second for superior players, and to be used in matches.

Nature of play very much effects the total unobstructed area to be provided all around the court. A team can take

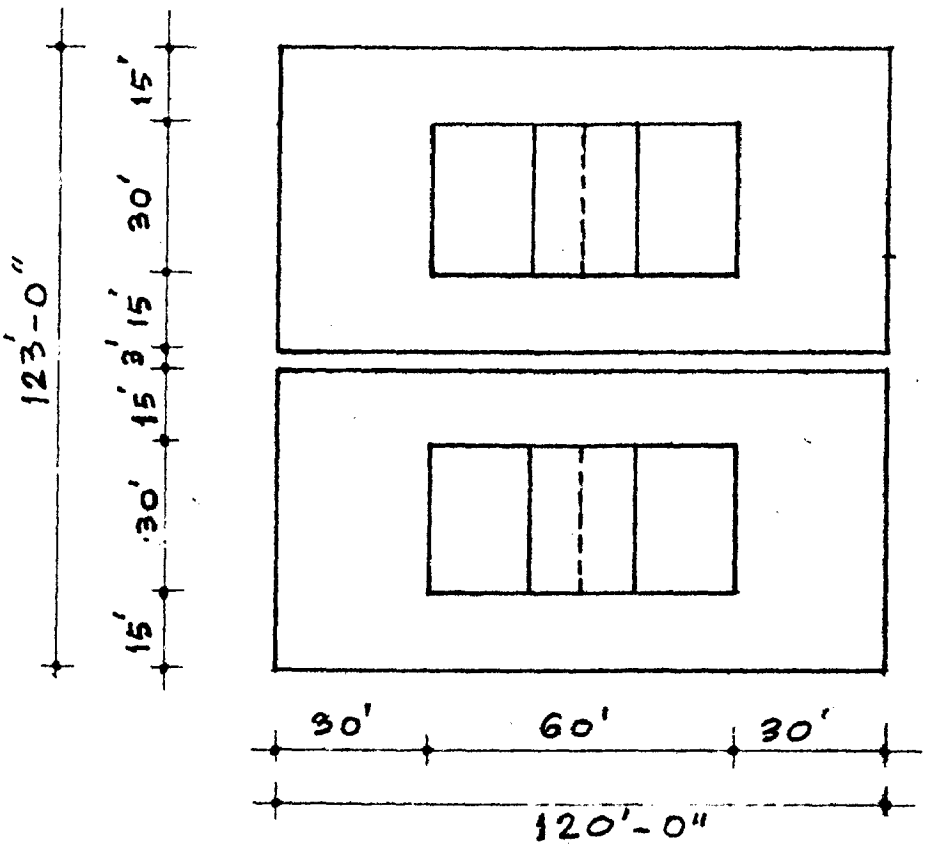
VOLLEY BALL COURT



AREA OF ONE COURT = 30' x 60' = 1800 SQ.FT.
TOTAL AREA REQD. FOR ONE COURT INCLUDING CLEARANCE = 60' x 120' = 7200 SQ. FT.

FIG. NO. 4.3. f.

VOLLEY BALL COURTS



TOTAL AREA REQD. FOR TWO COURTS WHEN PLACED SIDE-BY-SIDE = 123'x120
=14760 SQ. FT.

FIG. NO. 4.3.9

three chances, to cross the ball, over the net, to the opponents' court. Ball gets deflected very much in all directions after it is smashed. So to collect, check, and to send the ball across the net to the court of opponents , a clear and unobstructed space is required all-around the court for free running of players.

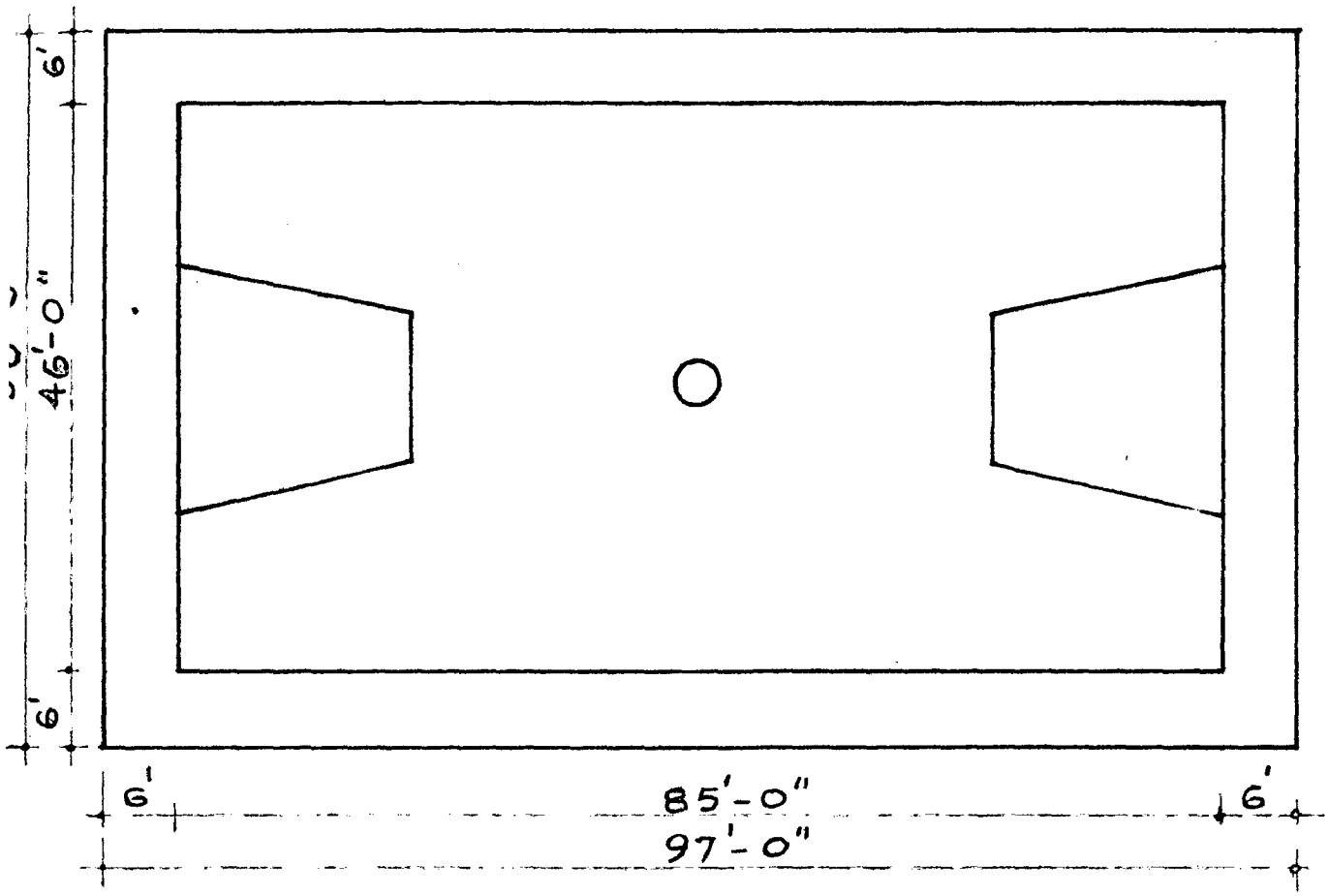
It is seen, and experienced that deflection of ball in sides is less, as compared to the deflection on the end directions of the court. A 15' wide open strip is required on both the sides of the court to enable a player to run to collect the deflected and rebounded ball.

30' clearance on both the ends is required as after hitting or smashing, the ball gets more deflection towards end sides.

An over all space of 60'x120' = 7200 sq. ft. is required for one volleyball court (Fig. No. 4.3.f).

Both the courts are to be laid side-by-side, for better supervision, keeping 3' gap for the movement of persons and players not playing, so that players who are playing, should not be disturbed. An area of measuring 123'x120'= 14,760 sq. ft. is required for both the volleyball courts (Fig. No. 4.3.g). Need not to provide any extra space, all-around the courts, for the assembly of players as the clearance left all-around the actual space of play (court) is sufficient for this purpose.

BASKETBALL COURT



AREA OF ONE COURT = 46' x 85' = 3910 SQ. FEET
TOTAL AREA REQD FOR ONE COURT INCLUDING CLEARANCE = 58' x 97' = 5626 SQUARE FEET

FIG. NO. 4.3. h.

(v) Basketball

Basketball is played by two teams of five players each. The purpose of each is to throw the ball into the basket of the opponent, and to prevent the other team from securing the ball or scoring. The ball may be passed, thrown, batted, rolled or dribbled in any direction.

The playing court shall be a rectangular surface free from obstructions, and shall have dimensions of 46'x85'.

Two courts are required in an intermediate college out of which one is for beginners and may be clay court for the safety against any injury, and second for matches, and superior players and may be cemented or concrete court.

Apart from the actual play area (area of court) some side and end clearances are also required for :-

(a) To avoid obstruction in play from the spectators.

(b) To avoid any mischief which may occur from spectators' side.

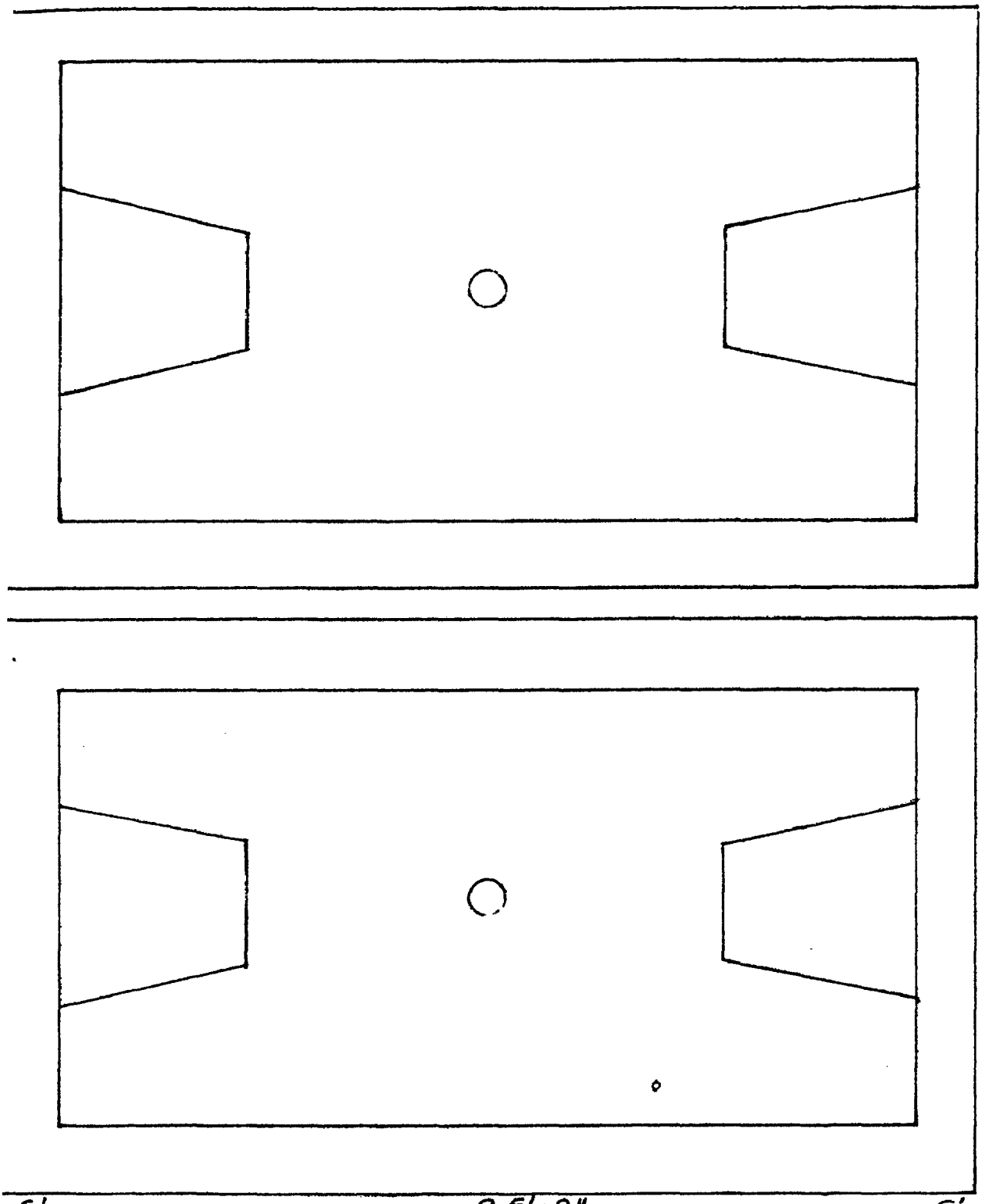
(c) To provide clear and unobstructed space for making throw from sides, and ends.

(d) Area to give instructions to the players by the Refree.

Taking into consideration of obstructions, and space required for making throw, based on the maximum expansion of the body of player a 6' clearance all-around a basket-ball court is required.

Over all area required for a basketball court

BASKETBALL COURTS



TOTAL AREA REQD. FOR TWO COURTS WHEN PLACED SIDE-BY-SIDE = 119'-0" x 97'-0" = 11543 SQ. FT.

FIG. NO. 4.3 i

including sides and end clearances, works out to be 58'x97'= 5626 sq. ft. (Fig. No. 4.3.h).

Both the courts are to be laid down side by side for better supervision, guidance and control, keeping 3' gap in between both the courts for the movement of students and players who are not playing.

An area of measuring 119' x 97' = 11543 sq. ft. is required for both the courts (Fig. No.4.3.i).

(vi) Kabbaddi.

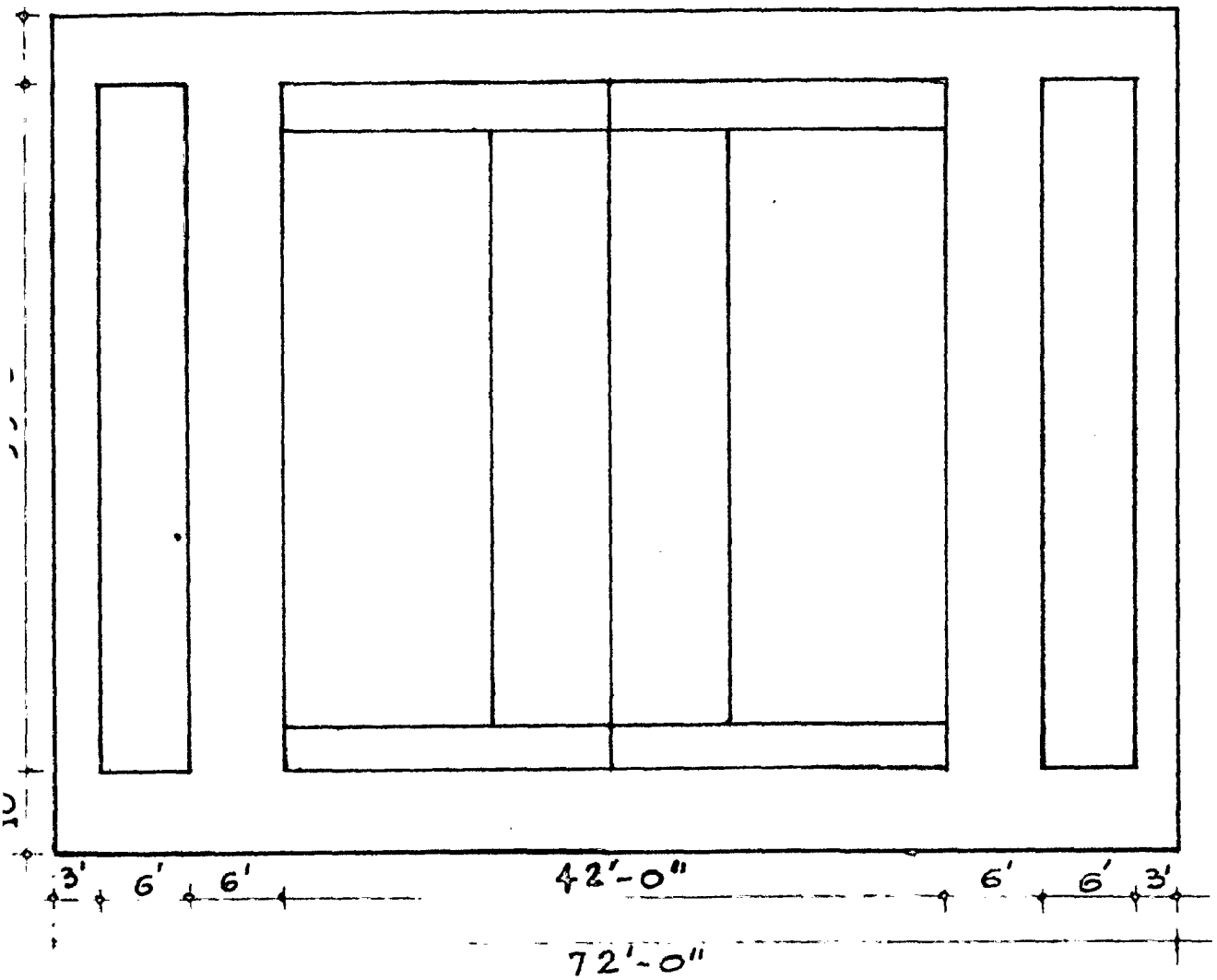
The game of kabbaddi is commonly known as Hu-tu-tu, Do-Do or Chidugudu, is a team game. Seven players shall take the ground at a time on each side. The duration of time for a representative match shall be of two halves of 20 minutes each with 5 minutes rest in the middle. The courts shall be changed after interval. Each side shall score 1 point for each opponent who is out.

The playing court shall be a rectangular, and leveled surface, free from obstructions, measuring 33'x62' divided by a middle line into two halves each measuring 33'x21'. Only one kabbaddi court is to be provided in each college as the participation percentage in the game is very low, and secondly the game itself is robust, and dirty and thus, attract very less students to play. One court will serve both the purposes, daily practice as well as of matches.

Apart from this play area clearances on all sides of the court are also required for :-

(a) To avoid any obstruction to the players by the

KABADDI COURT



AREA OF ONE COURT = 33' x 42' = 1386 SQ.FT.
TOTAL AREA REQD. FOR ONE COURT = 53'x72'
= 3816 SQ.FT.

FIG. NO. 4.3.j

(b) To avoid any accident as the player who has gone for raid has to rush back with great speed after touching the opponent.

(c) To avoid any mischief from the spectators with the players.

(d) To provide better look to all the spectators from all directions.

(e) Area to give instructions to the players by the Refree.

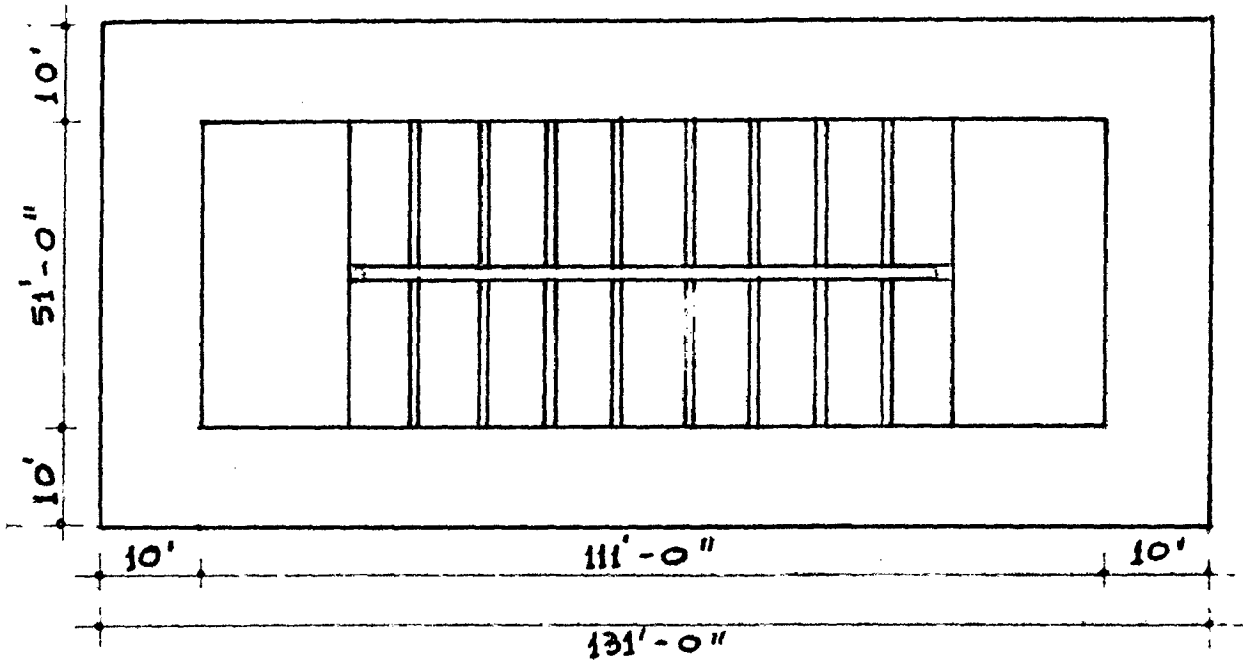
Depending upon the nature and manner, in which game is to be played, 10' clearance all-around the court is required. Though every player has to be within the court all the time during play otherwise negative point will be counted against his team and even after touching the opponent by the raider he has come back to his side through the court but even than the sides and ends clearances are required.

The total space required for a kabbaddi court works out to be 53' x 62' = 3286 sq. ft. (Fig. No. 4.3.j).

(vii) Kho-Kho

This is team game, and each side shall consist of 9 players. An innings will consist of chasing and running turns which shall be of seven minutes each. Each match will consist of two innings. There shall be an interval of 5 minutes after an inning and two minutes in between two turns. The side of the chasers shall score one point for each runner who is out. At the beginning of a turn the first 3 players shall be inside the court's limits. Immediately before

KHO-KHO COURT



AREA OF COURT = 51' × 111' = 5661 SQ. FT.

TOTAL AREA REQD. FOR ONE COURT = 71 × 131 = 9301 SQ FT

FIG. NO. 4.3.k.

kho is given on those three being out, the next three shall enter into the court. Those who fail to enter within that period shall be declared out.

One court is to be provided for kho-kho for practice as well as for matches. A standard court of the size of 51'x111' is required for the play. But some space all-around the court is required for :-

(a) To provide some gap between players and spectators.

(b) Area to give instructions to players by the Referee.

(c) Area for assembly of the players before the match is started.

(d) To provide some space for body control for a player who is just running at the edge of boundary line - whether a chaser or runner.

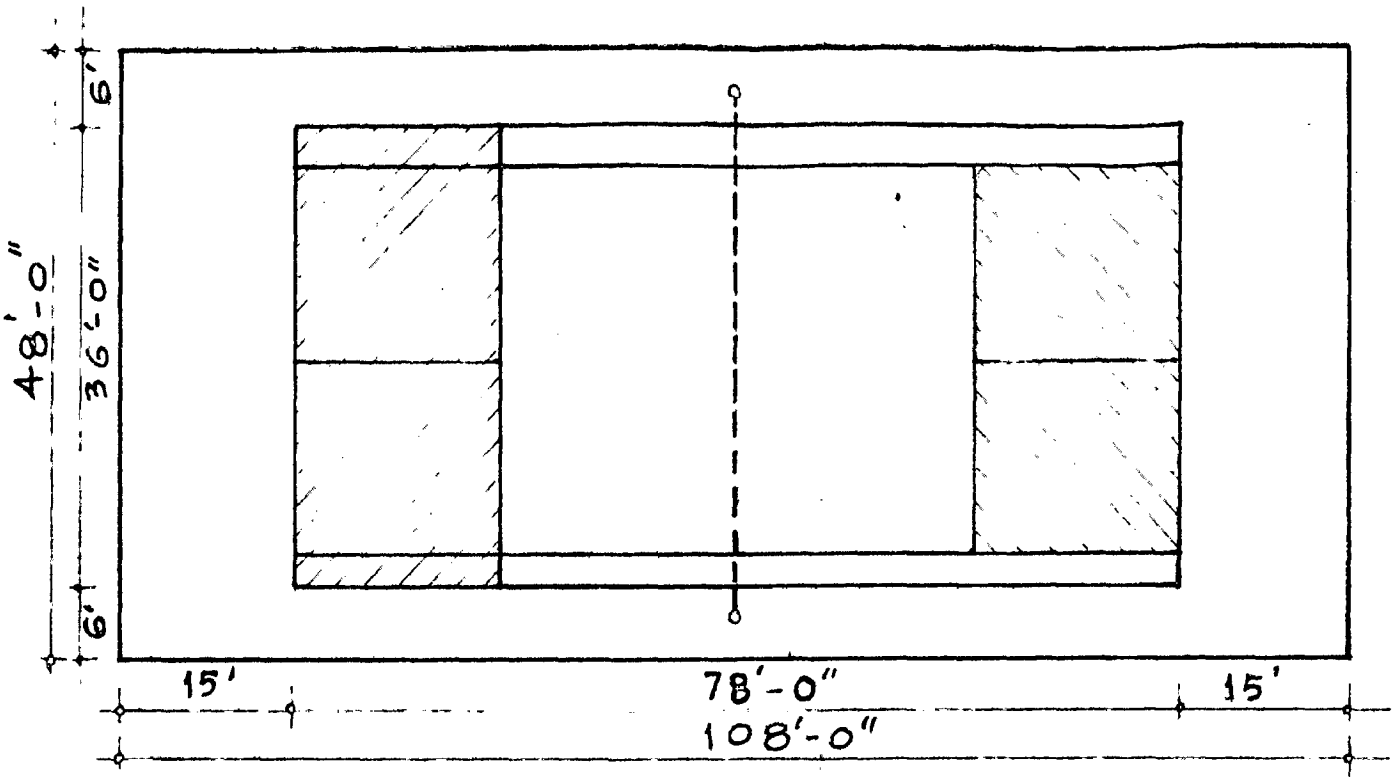
A clearance of 10' all-around the actual boundary of the court is required as to control the body within this limit, because as a rule any player is not allowed to go out of the court during play, otherwise negative point will be counted against defaulters.

Thus an overall area of 71'x131' = 9,301 sq. ft. is required for one kho-kho court (Fig. No. 4.3.k).

(viii) Tennis

This is an individual game and may be played as couble's game. Game is divided on the basis of best of three or best of five sets and each set is minimum of six games.

TENNIS COURT

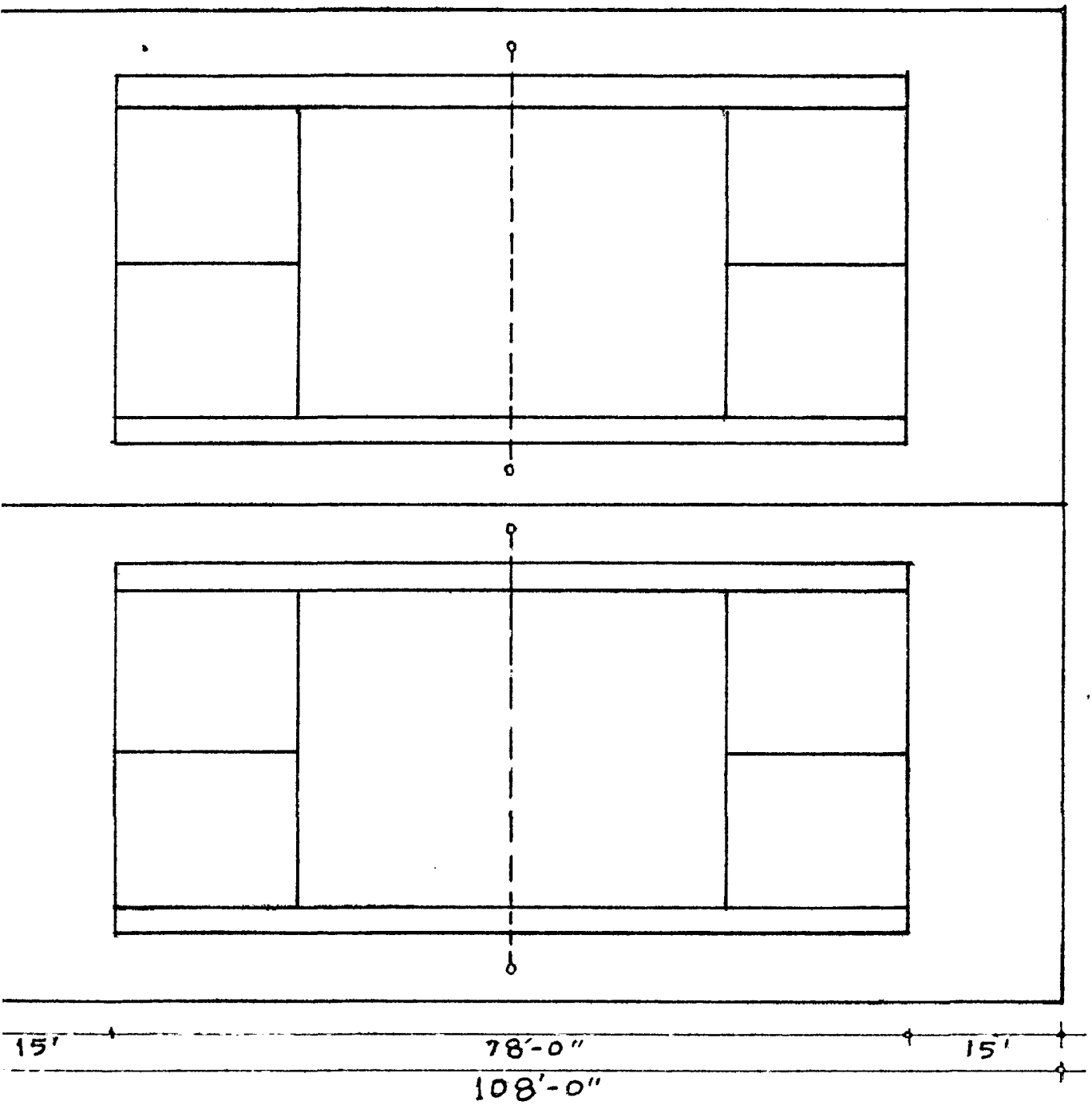


AREA OF ONE COURT = 36' x 78' = 2808 SQ. FT.

TOTAL AREA REQD. FOR ONE COURT INCLUDING CLEARANCE = 48' x 108' = 5184 SQ. FEET

FIG. NO. 4.3.l.

TENNIS COURTS



TOTAL AREA REQD. FOR TWO COURTS WHEN PLACED SIDE BY SIDE = 96' x 108' = 10368 SQ. FT.

FIG. NO. 4.3.m.

The court may be singles or doubles but arranged only in one court. The court shall be rectangle and the surface should be smooth, firm and levelled.

The singles court is a rectangle of 27'x78' and the double court is also rectangular measuring 36'x78'. with 4'-6" alley added to each side of singles' court. These dimensions are only of the play area. Its length is divided in two halves by a net suspended from two tightly secured and passes over posts 3'-6" high each standing 3' out-side the side lines (Fig. No. 4.3.1).

A court for competitions or tournaments must have a back running space of 21' on each side and a side running space of 12' on both sides.

For an intermediate college, two courts are required, one for having wall in place of net, marked the profile of the net and 12' in height for wall practice and learning the correct and right technique, alone, and the second court for matches and for superior players forthe regular play.

Side and back running spaces are also provided alongwith both the courts which is worked out to be 6' for sides and 15' for back keeping in view the standard of the game and physical fitness of the players according to their age in intermediate college. Service is done and received by a player 2 in the back running space.

Total area required for one court is calculated as 48' x 108' = 5184 sq. ft. Both the courts are to be laid down side by side for better control and supervision.

The total area required for both courts works out as 93' x 108' = 10,338 sq. ft. (Fig. No. 4.3.n).

(ix) Badminton

This is an individual and indoor game but also played as doubles. In India, specially by the beginners, this game is played on out-door courts. The match is decided either on best of three or best of five games.

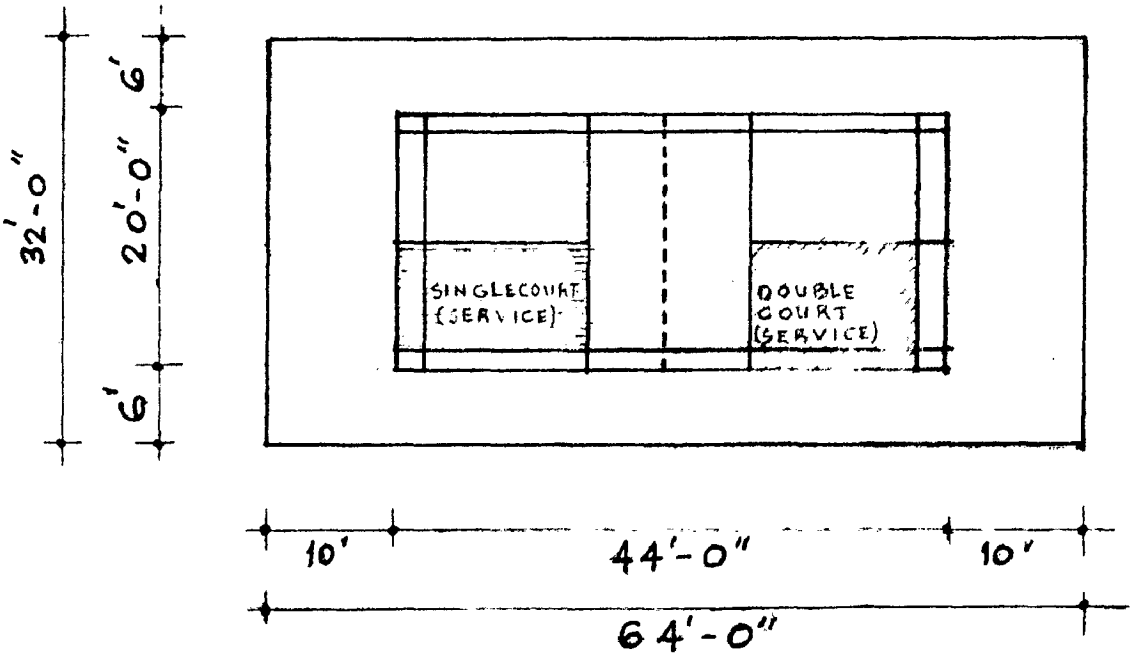
The court may be singles or doubles, and arranged in one court only. The court area is to be clean and undisturbed.

The single court is a rectangle of 17' x 44' and the double court is also rectangular measuring 20' x 44' with back galleries 2'-6" wide each. The net posts shall be 5'-1" high.

In an intermediate college, two courts are required one for beginners and may be an out-door court, and other for matches and superior players, and may be indoor court to be provided in the multipurpose hall, because for good matches one has to be habitual in playing on indoor court as all tournaments are generally played on indoor courts.

Side and end clearances are also to be provided necessarily for an unobstructed play and free movement of players. Shuttle has to be crossed in one stroke and players have to be in courts all the time. Sometime, one has to rush and run to receive the shuttle falling just on the side or end boundary line, so free space all-around the court is required.

BADMINTON COURT



AREA OF COURT = 20' x 44' = 880 SQ. FEET
TOTAL AREA REQUIRED FOR ONE GROUND INCLUDING CLEARANCE = 32' x 64' = 2048 SQUARE FEET.

FIG. NO. 4.3.0

It is experienced that a side clearance of 6' on both sides, and back running space of 10' on both the ends is to be provided.

Thus, the total area for one court works out to be 32' x 64' = 2048 sq. ft. (Fig. No.4.3.0).

In case of indoor courts, a clear area of 32'x64' must be available. The poles must be removable, which can removed whenever required. The height of hall should be atleast 25', and light should come from the roof, and preferably, there should be electric lighting arrangement in the hall. The hall should be specially designed for indoor games like badminton and table tennis.

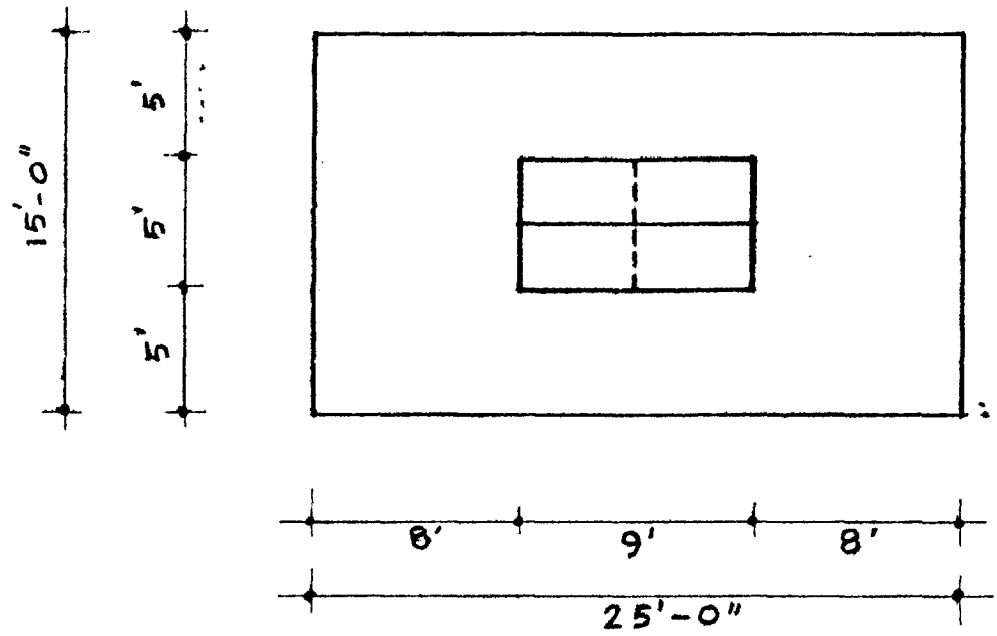
(x) Table tennis

An individual and indoor game, and played by only few persons. A table, made of specially for the purpose is used for the play. Doubles game can also be played on the same table. The match is decided either on best of three or best of five games. A game shall be won by the player who first wins 21 points unless both players shall have scored 20 points, when the winner of the game shall be who first wins two points more than his opponent.

The table shall be in surface rectangular measuring 5'x9' and shall be supported in such a way that its upper surface shall be 2'-6" above the floor and shall be in a horizontal plane.

One table is required for intermediate college based on popularity of the game and economy. It should

TABLE TENNIS



AREA OF ONE TABLE = 5'-0" x 9'-0" = 45 SQ.FT.
TOTAL AREA REQD. FOR ONE TABLE INCLUDING CLEARANCE = 15' x 25' = 375 SQUARE FEET.

FIG. NO. 4.3.P

either be accommodated in multipurpose hall or in a separate room, specially designed for the indoor games like; table tennis or badminton.

Space where the table is to be put, should be in accordance with the space required for proper clearances. It is noticed that after stricking the ball on the table, gets deflected in different directions, so the player has to be sufficiently away from the table to receive and return the ball. It is experienced and seen that the side and end clearances of 5' x 8' respectively, are required for the age group of 11 to 18 years. A player stretches his body to maximum at a time to receive the fast and away going ball.

A total space required for table tennis table including side and end clearances worked out to be 15'x25' = 375' sq. ft. (Fig. No. 4.3.p).

(xi) Gymnasium (including space for wrestling).

Gymnastic is a basic game and practised by gymnasts as well as by the players of other games and sports. Covered gymnasium are used for practice, abroad. In India, at present, partly covered and partly open air gymnasiums are in use. It is an individual as well as a team game, also. Team competitions, individual competitions and individual apparatus competitions are included in the total competition.

An open air gymnasium is to be provided in every intermediate college, as it is not economical and possible to provide covered gymnasium in every college. Climatic

conditions are such, in Meerut Division that an open-air-gymnasium will serve the purpose. The over all space to be provided for an open air gymnasium will depend upon the types and sizes of apparatus to be used and the types of activities to be performed. There is no hard and fast rule for the provision of space for each apparatus and activity, it depends only on experience and experiments. The following equipment shall be fixed in the open-air-gymnasium :

(a) Rope (R)
(b) Roman Ring (RR)
(c) Horizontal Bar (H.B.)
(d) Parallel Bar (P.B.)
(e) Pommelled Horse (P.H.)
(f) Long Horse (L.H.)
(g) Balancing Beam (B.B.)
(h) Wall Bar (W.B.)
(i) Spring Board (S.B.)
(j) Weight lifting Set (W.L.)
(k) Landing Mat (L.M.)
(l) Wrestling Mat (W.M.)
(m) Chest Expender (C.E.)
(n) Dumb-Bell (D.B.)

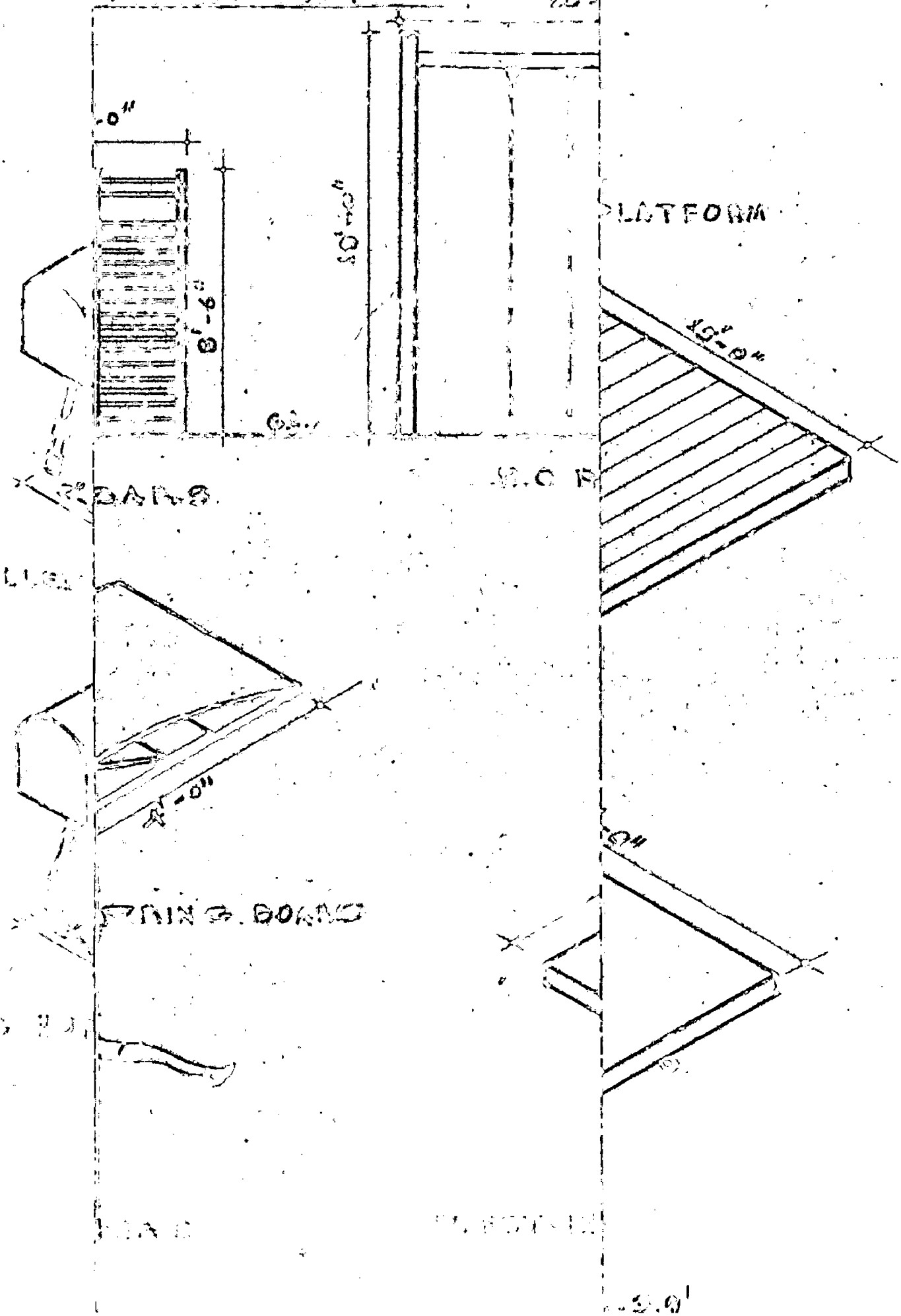
The total space required shall depends upon :

(a) Area required for apparatus.
(b) Area required for various activities on those apparatus.

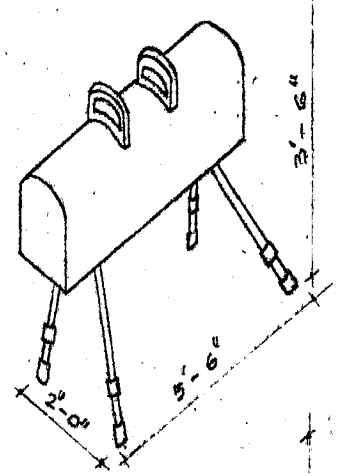
Analysis of area :

(a) Rope - Four ropes are to be provided which require 20' long space. The total height of the rope will be 12' from the ground. Students will come and climb on

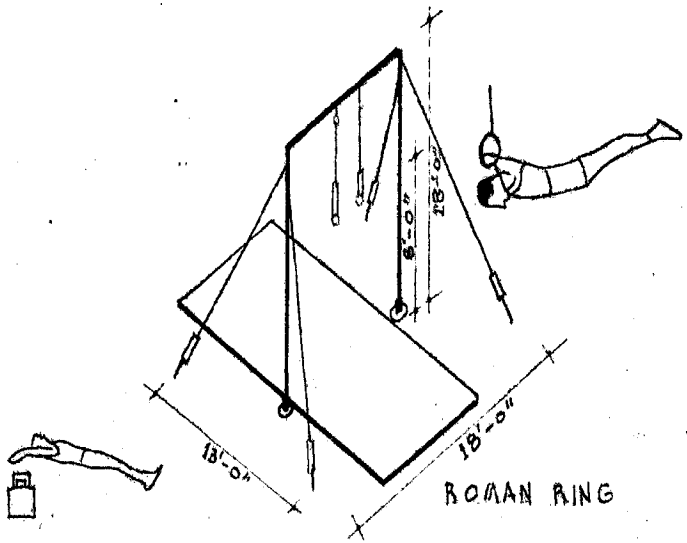
PPARATUS



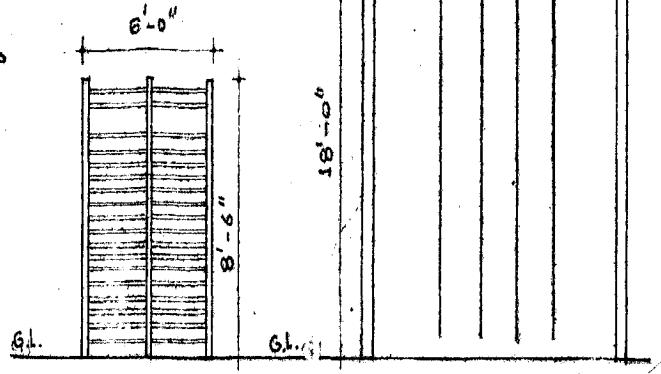
GYMNASTIC APPARATUS



LLED HORSE



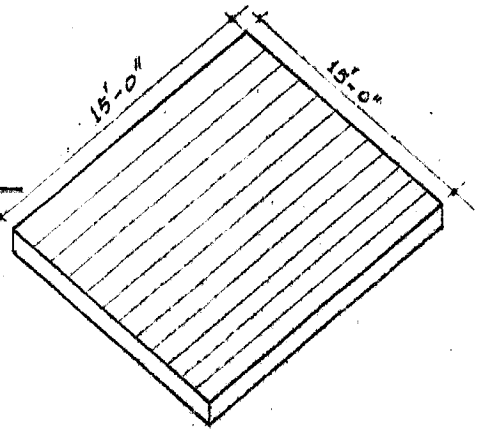
ROMAN RING

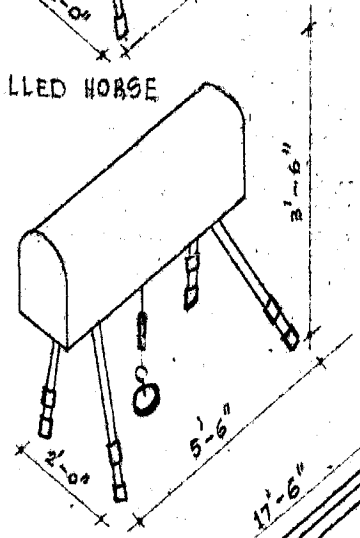


WALL BARS

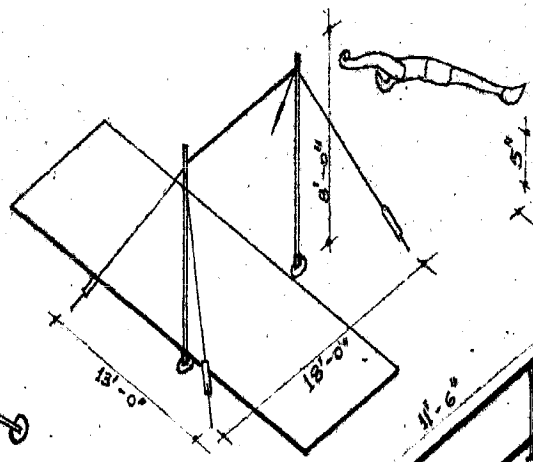
ROPES

WEIGHT LIFTING PLATFORM

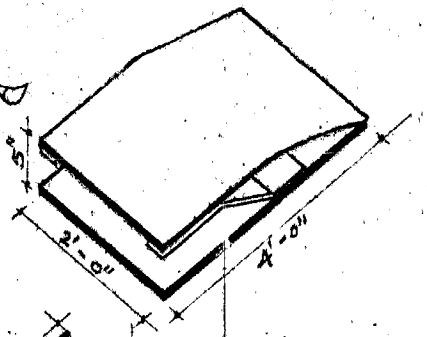




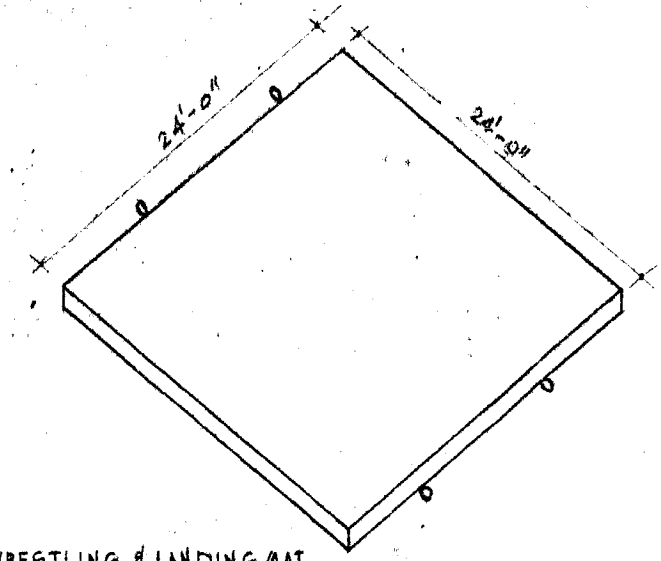
HORSE



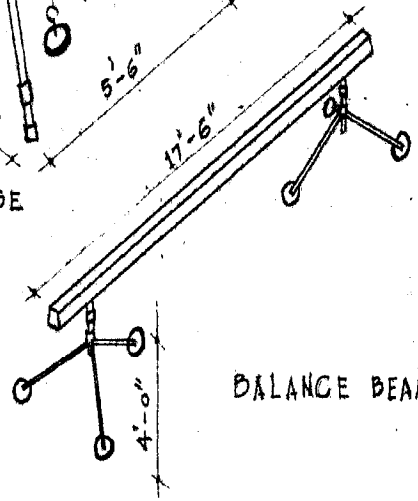
HORIZONTAL BAR



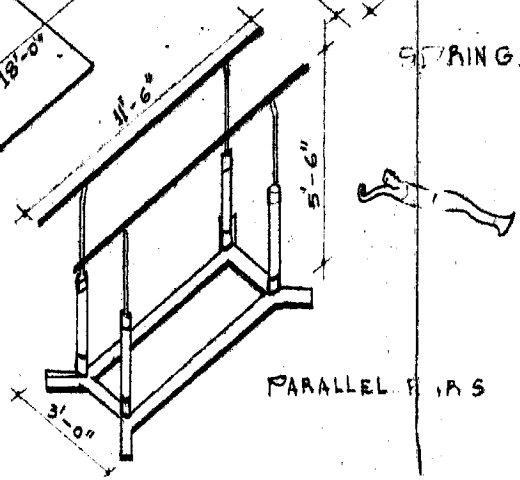
RING BOARD



WRESTLING & LANDING MAT



BALANCE BEAM



PARALLEL BARS

FIG. NO. 4.3.9

the rope (Fig. No. 4.3.g[1]).

(b) Roman Ring - The total area required for apparatus is 18'x13', but taking into consideration the activities in which maximum area is required the clearance of 30' on both the side from the centre of the righ is required (Fig. No.4.3.g[1]).

(c) Horizontal Bar - It covers the space of 18'x13' but sufficient clearance is required for carrying out the exercises (Fig. No. 4.3.g[1]).

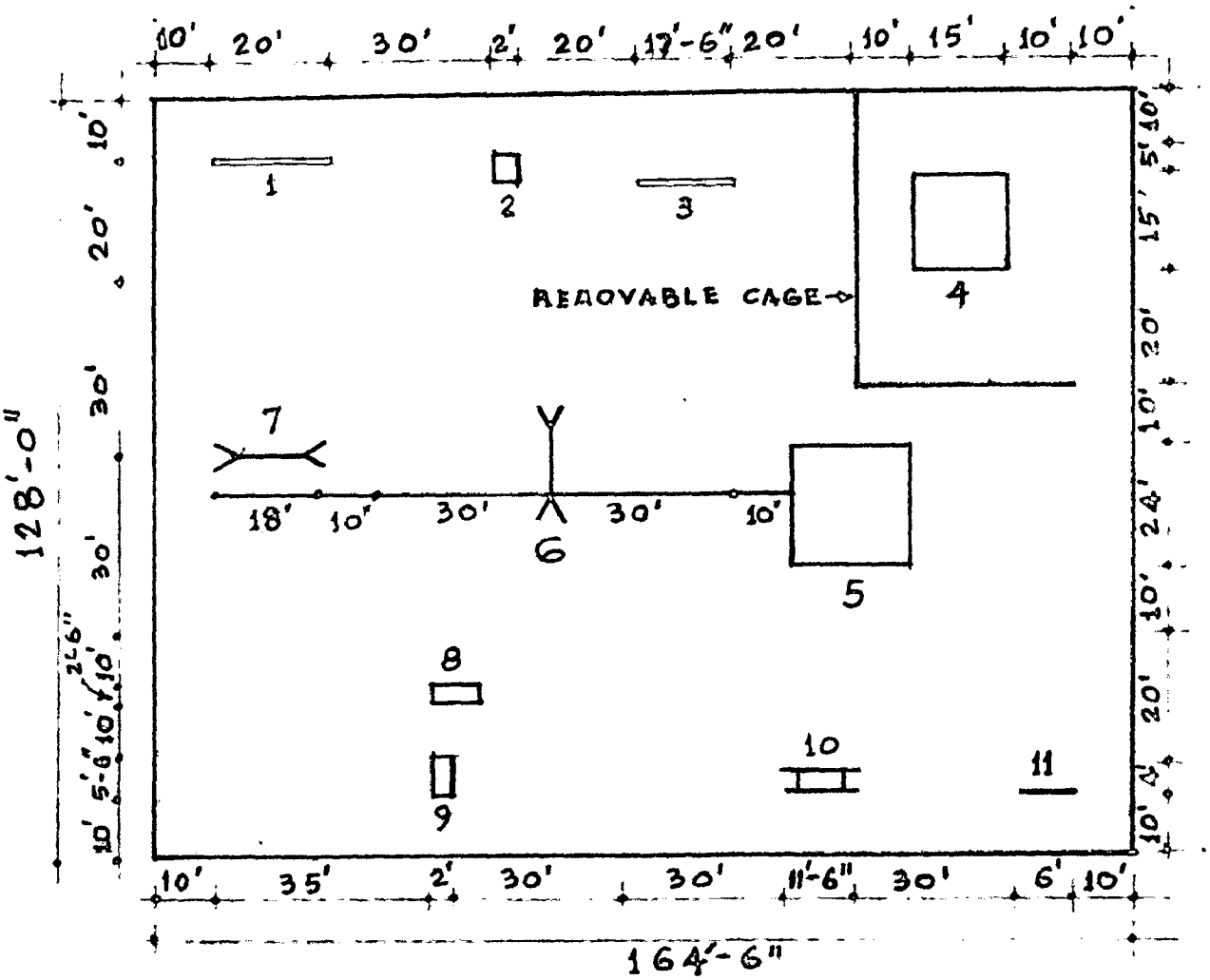
(d) Parallel Bar - It covers a space of 11'-6" x 1'-6" but a space of 30' on either side end of the apparatus is to be provided to carry out the exercises in which the maximum space is required(Fig.No.4.3.g[1]).

(e) Pommelled Horse - According to its dimensions, it covers an space of 2'x5'-6" but keeping in view the types of exercises to be done on it a 45' and 30' clear spaces are to be kept on front and rear (landing) sides to give free space for running and landing (Fig. No.4.3.g[1]).

(f) Long Horse - 2'x5'-6" is required for the apparatus and 45' and 40' clear space is required in front and landing sides for the exercises in which maximum space is required, as one has to run and cross the horse, taking support of the horse and then landing on the mat (Fig. No. 4.3.g[1]).

(g) Balancing Beam - It covers an space of 3'-6" x 16'-6" side clearances of 20' each side is required. Front and landing side clearances of 15' each are also required as activities are to be performed

OPEN-AIR GYMNASIUM



LEGEND :-

1 ROPE
2 SPRING BOARD
3 BALANCE BEAM
4 WEIGHT LIFTING PLATFORM
5 WRESTLING MAT
6 HORIZONTAL BAR
7 ROMAN RING
8 LONG HORSE
9 POMMELLED HORSE
10 PARALLEL BARS
11 WALL BARS

TOTAL AREA REQUIRED FOR ONE GYMNASIUM
128'-0" x 164'-6" = 21056 SQ. FT.

FIG. NO. 4.3.4

smoothly (Fig. No.4.3.q[1]).

(h) Wall Bars - Those are 6' long and 8'-6" high and placed in vertical direction and used for climbing, and in front side clear space of 20' width is required with a provision of 10' on each side.(Fig. No. 4.3.q[1]).

(i) Spring Board - It requires a space of 2' x 4' and used for jumping in the air to improve springing action of the body. A 20' space on both sides and 10' in approach side and 20' on landing side is required for safety (Fig. No.4.3.q[1]).

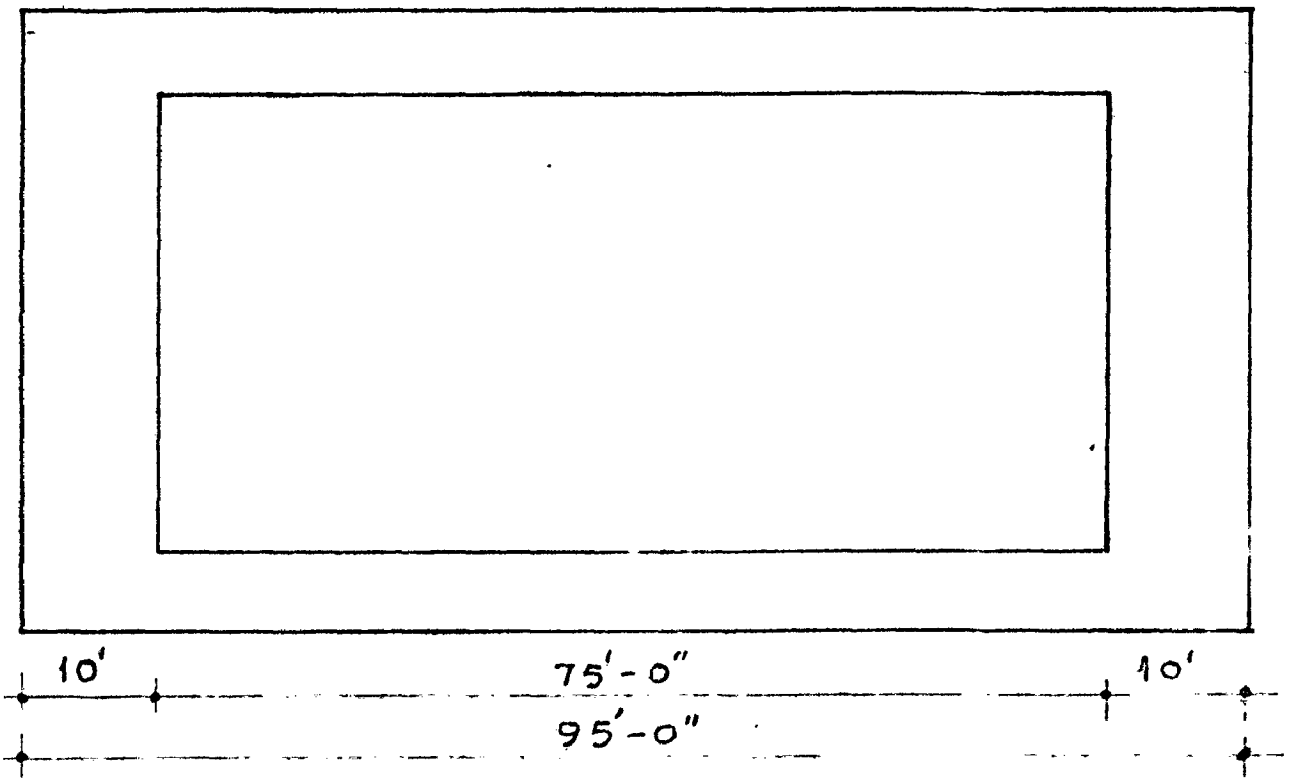
(j) Weight Lifting - A 15' x 15' wooden platform is required for weight lifting, lifting set is to be put on it. Additional 15' wide space all-around the platform is required for safety and the free movement of other students, who are doing light weight training (Fig. No.4.3.q[1]).

(k) & (l) Landing And Wrestling Mat - Two mats measuring 20'x20'x3" are required for wrestling and landing from the apparatus like; horizontal bar, parallel barsand horses etc. after finishing the exercises (Fig. No. 4.3.q[1]).

(m) & (n) Chest Expender And Dumb-Bell - Those are to be put with weight lifting set.

Based on the analysis, the over all space required for an 'open-air-gymnasium' has been worked out by arranging all apparatus, space of 128' x 164'-6" is required for this purpose (Fig. No. 4.3.q).

PLUNGE BATH for SWIMMING



AREA OF ONE PLUNGE BATH = 42' x 75' = 3150 SQ. FT.
TOTAL AREA REQD. FOR ONE PLUNGE BATH INCLUDING CLEARANCE = 52' x 95' = 4940 SQ FT.
DEPTH OF PLUNGE BATH = 3'-6"

FIG. NO. 4.3.U

(xii) Swimming Pool (Plunge bath).

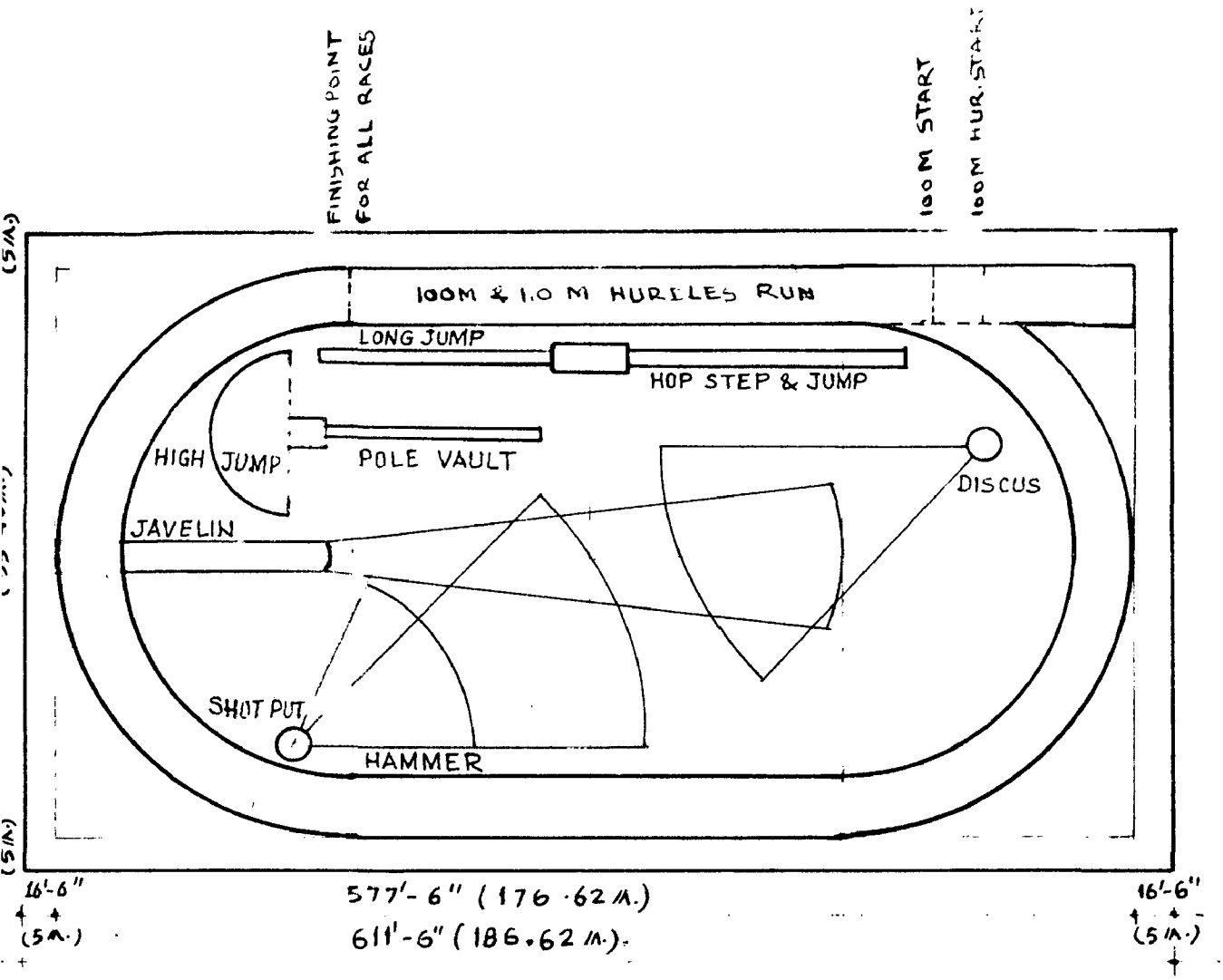
Swimming is an individual game and comprises of races, freestyle and with special strocks. The standard size of a swimming pool (olympic size) is 50 metres x 21 metres. Generally, a common pool for swimming and diving is provided, with total installations, which include pool. (50 x 21 metres), diving boards, lockers, toilet, showers and changing room etc. The cost of the swimming and diving pool goes upto lakhs, which is difficult to afford by any college. It is not possible to provide swimming and diving pool in every college. It should either be provided for a group of colleges or for a city which will cater for all colleges in the city.

But, swimming is a basic game and should be practised by each sportsman and player, irrespective of his events as swimming is good for stomach and lungs. It gives lot of stamina and long breathing power.

In the absence of a full size swimming pool a plunge bath (a sort of small swimming pool), of the size of 42'x 75', which will serve the purpose of learning swimming, and even will hold good for practice for swimming, is to be provided in each college. The water depth is to be kept 3'-6" only, for safety reason, in which a non-swimmer can also learn swimming, without much fear.

A 5' wide strip on both the longer sides and 10' wide strip on both the shorter sides are to be provided for the clearance, and for free movement of swimmers. These all-around strips (platform) has to be of cement concrete

ATHLETIC TRACK
(400 METERS)



RECTANGULAR AREA OF ONE TRACK = 313'-0" x 577'-6" = 180757.5 SFT.

TOTAL AREA REQD. FOR ONE TRACK INCL. CLEARANCE
= 346'-0" x 611'-6" = 211579 SFT.

FIG. NO. 4.3.Y.

SPACES FOR ATHLETIC EVENTS

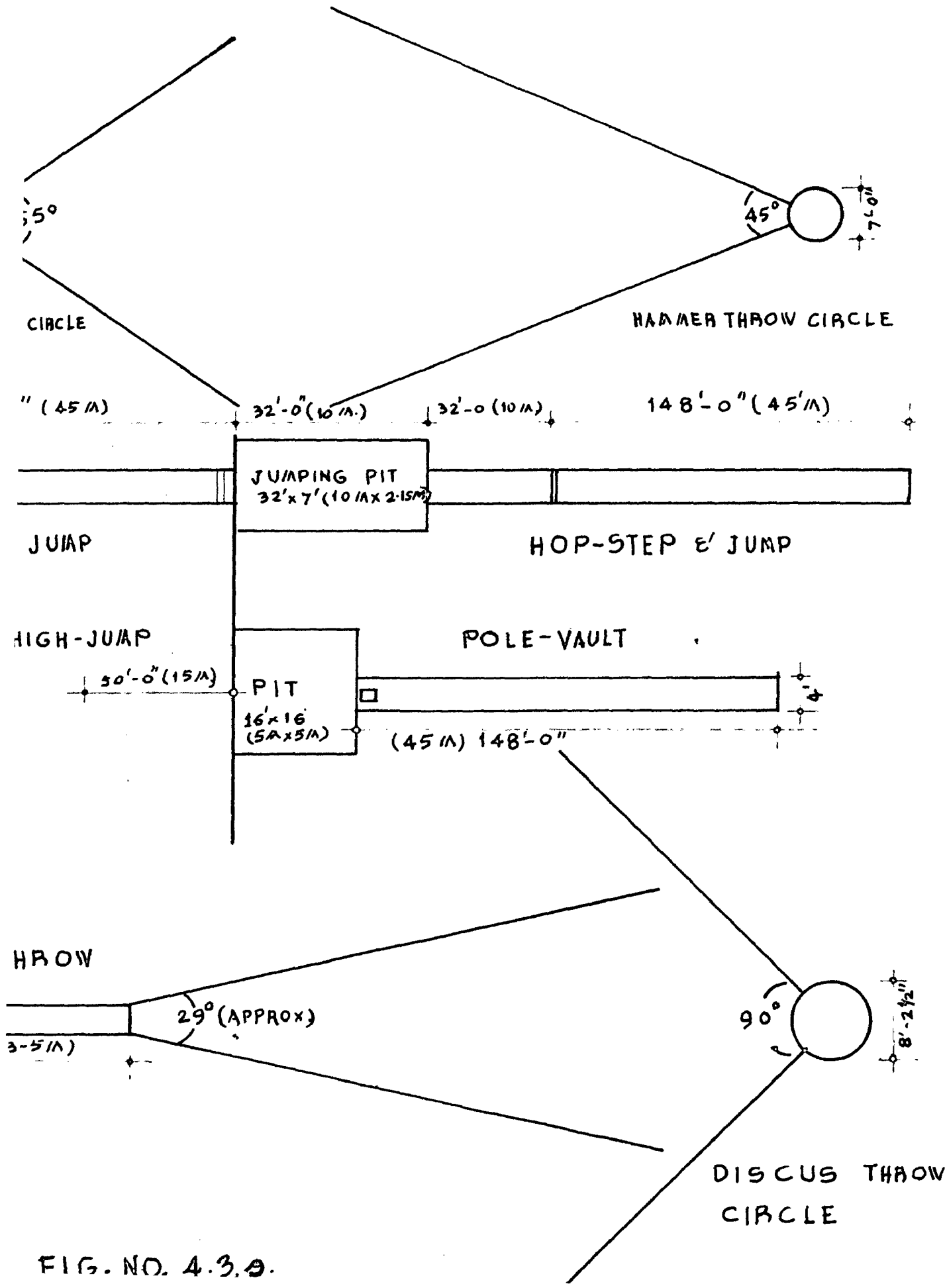


FIG. NO. 4.3.9.

checkorred flooring. This plunge bath has to be constructed as per regulations of swimming pool, for water proofing etc.

The total area to be provided for a plunge bath works out to be 52' x 95' = 4940 sq. ft. (Fig. No. 4.3.n). This pool is to be located, near the college building, especially near there lockers, toilets, showers and changing rooms are located, as separate, facilities for these, will not be provided alongwith the plunge bath.

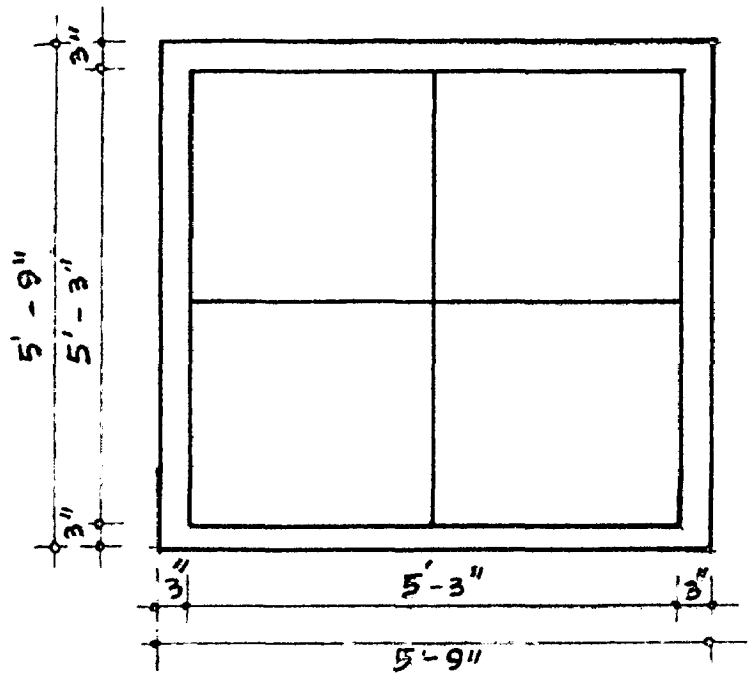
(xiii) Athletic Track

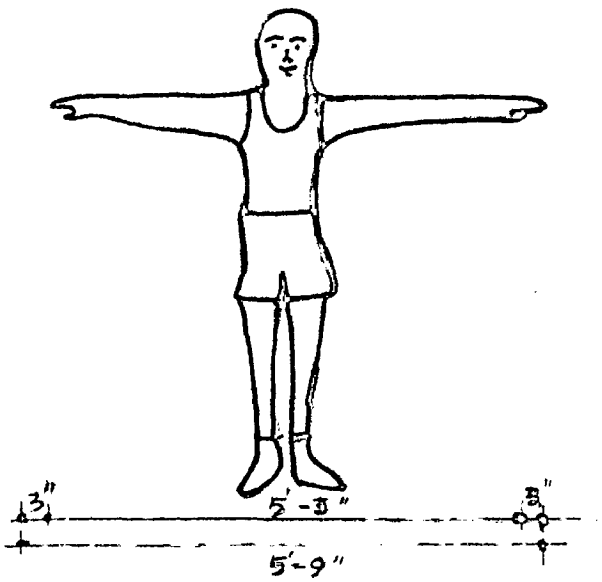
A standard track of 44 yds. (400 metres) is required for an intermediate college. Its all measurements and dimensions are standarised. Actual running lanes are required for running from 100 metres to 1500 metres. Marking of starting and finishing points are done, and their places are almost fixed. Eight lanes for running are provided.

Side and end clearances of 5 metres (16'-6") each are to be provided. For 100 metres (110 yds) 5 metres (16'-6") clear space is provided at the starting and the finishing points. The total space required for 440 yds (400 metres) Athletic track works out to be 346' x 611' (105.00 x 186.62 metres)(Fig. No. 4.3.r).

The inner space of the running track will be utilised for items of jumping and throuing. The dimensions of jumping pits, running distances and throuing area are standardised and are shown in Fig. No. 4.3.s) and those could be arranged as shown in Fig. No.4.3.r.

PHYSICAL TRAINING





PER STUDENT = 5'-9" x 5'-9" = 33 SQ. FEET.

L AREA REQD. FOR 570 STUDENTS FOR MASS
SICAL TRAINING = 570' x 33' = 18810 SQ.Ft.

FIG. NO. 4.3.U

(xiv) Training Area

(c) Physical Training Area - At the time of mass physical training of the students, the total number of students except those who are exempted will take part. Total area required for mass physical training will be governed by the total number of students.

Taking into consideration that out of 600 students, 30 students (5%) who are exempted, only 570 students will take part. Taking 5'-3" average height of a student and the activity for which the maximum space will be required, keeping 3" gap all-around a student between two students, the total area worked out for a student is 5'-9" x 5'-9". The total area required for 570 students works out to be 18810 ~~18660~~ sq. ft., which shows that there is no need of providing this space separately, as football, hockey or athletic ground shall be utilised for this purpose as those activities will not be performed at the time of mass physical education. (Fig.No.4.3.v

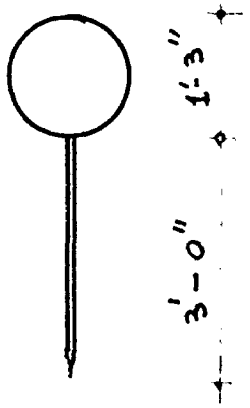
(b) Special Training Area - The special training area is required for developing the skill and learning the correct tactics for hockey, football and volleyball. Different types of equipment are required for all these three. One player can, alone, do the practice on these equipment, without the help of others.

TRAINING EQUIPMENT

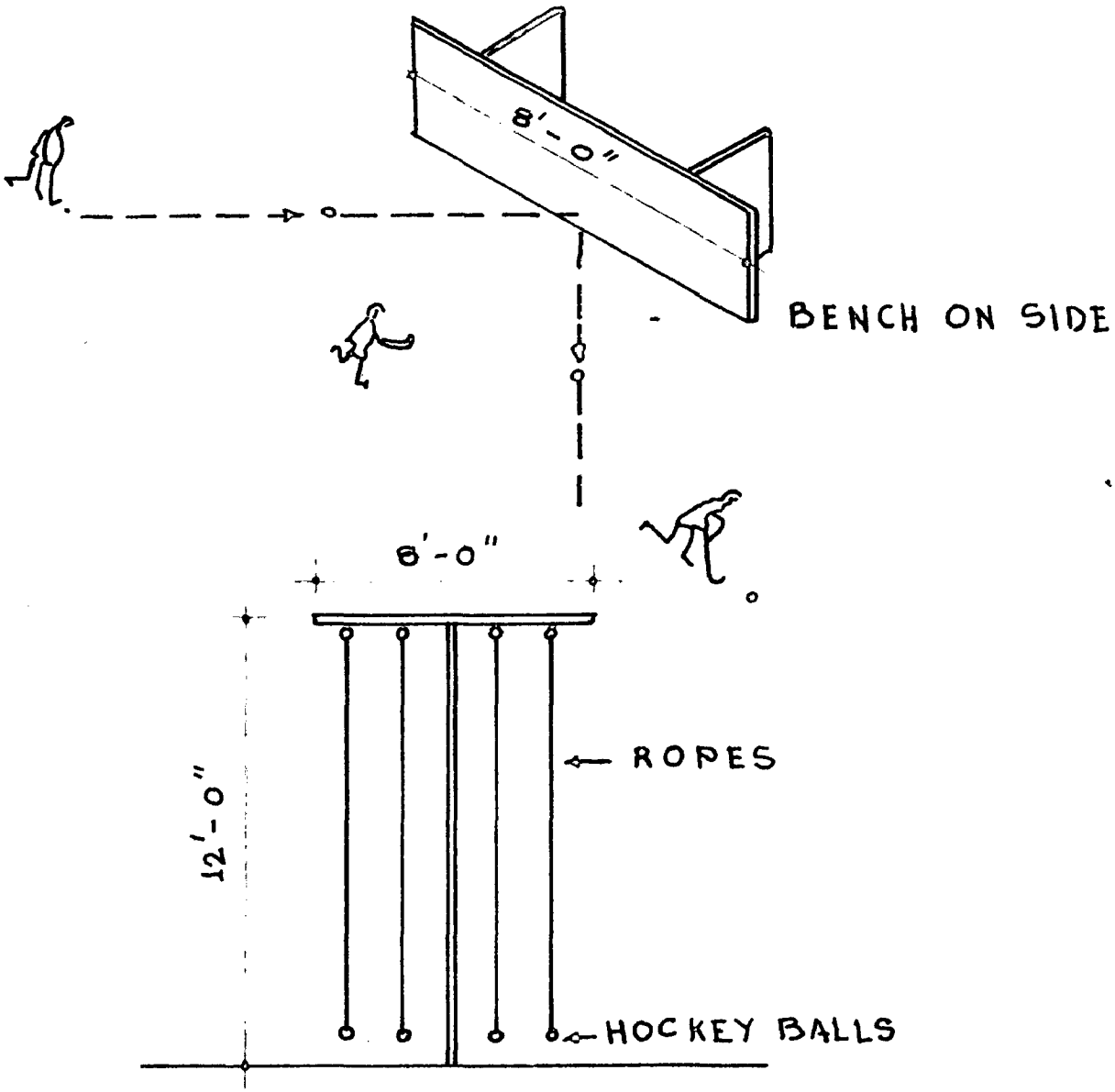
HOCKEY

/OODEN PEG

DR DRIBBLING & BETTER
ALL CONTROL

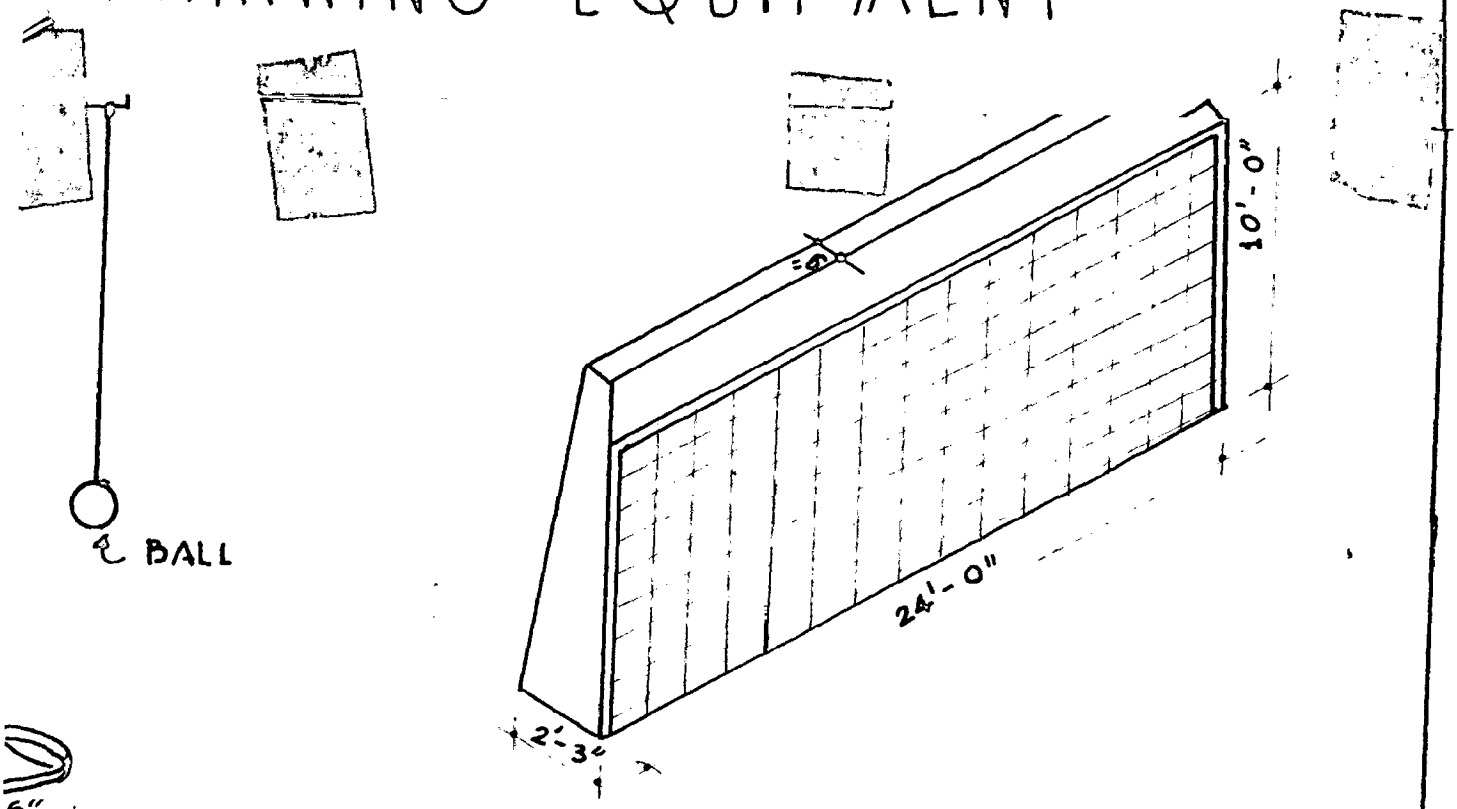


RING FOR FLICKING PRACTICE



APPARATUS FOR KICKING PRACTICE OF GOALKEEPER

TRAINING EQUIPMENT

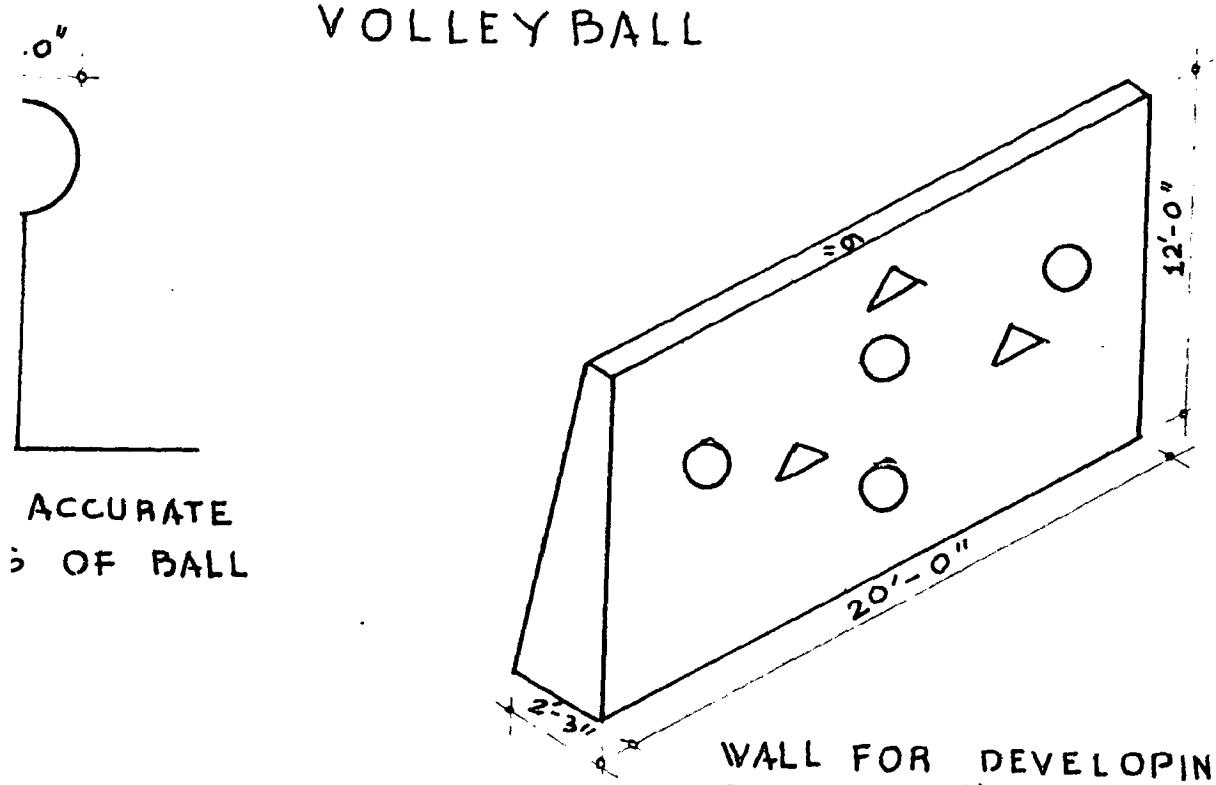


, TRAPPING
& GOAL KEEPING

WALL WITH GOAL'S PROFILE FOR KICKING TECHNIQUE

FIG. NO. 4.3 t_2

VOLLEY BALL



ACCURATE
OF BALL

WALL FOR DEVELOPING PHYSICAL & TECHNICAL QUALITIES

FIG. NO. 4.3. t_3.

(1) Hockey - Apparatus and equipment required for the practice of dribbling, dodging, flicking and kicking practice by goal-keeper, are shown in Fig. No.4.3.t_1). Proper and clear space as required for these equipment has to be kept.

(2) Football - A brick wall of the size of 24' width and 10' height is required. The profile of goal is painted on the wall and the total area be divided in small squares. The correct and accurate shooting practice is to be done on this wall by a player without the help of the other player.

Similarly an equipment for heading practice is also required. These all apparatus are shown in Fig. No. 4.3.t_2).

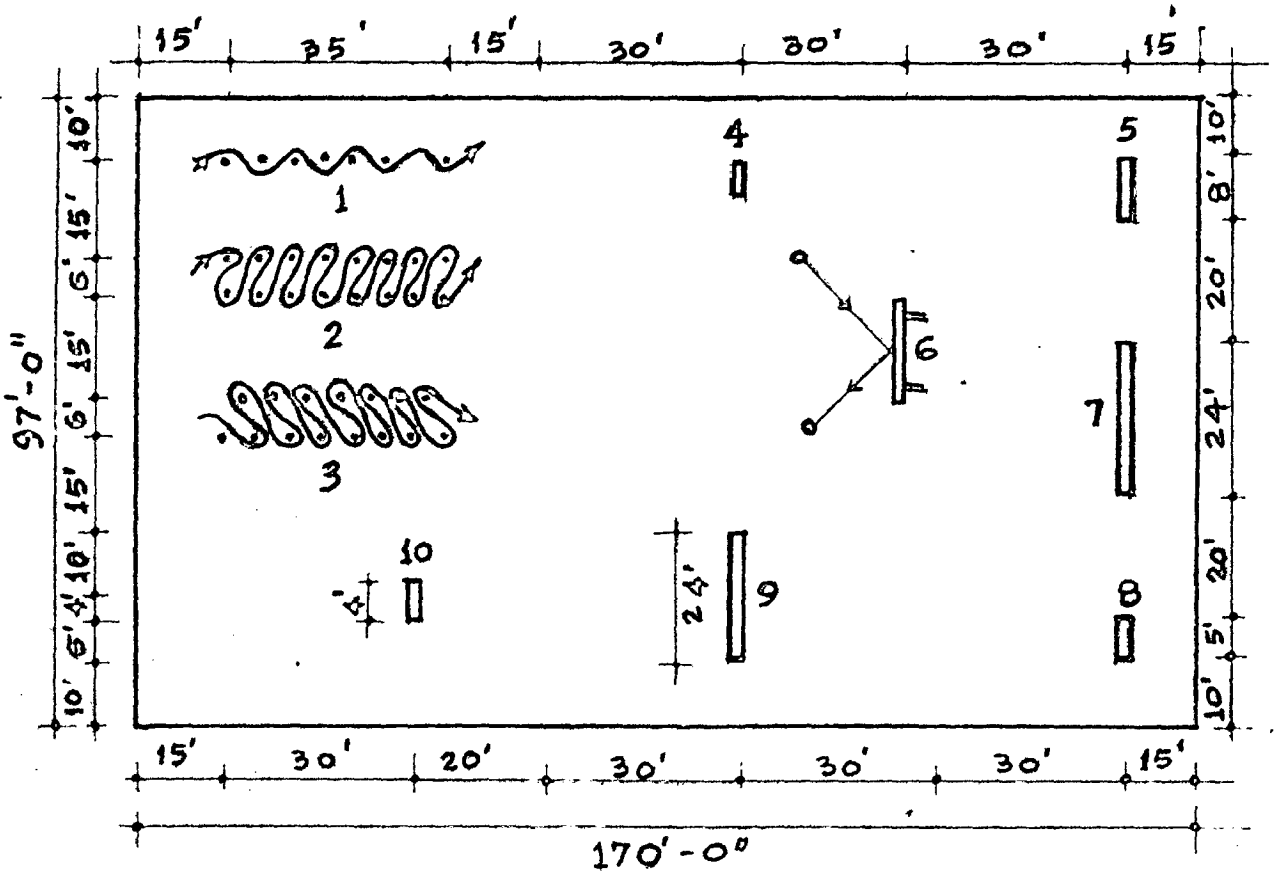
(3) Volleyball - A wall of the size of 24' width and 12' height marked with the different figures as shown in Fig. No.4.3.t_3 is required for correct placing and accurate smashing the ball. A ring of 4' diameter is also used for this purpose. Side clearances and unobstructed space is required all-around these apparatus for safety, and free movement of players doing practice.

Analysis Of Space

These apparatus, and equipment are placed and arranged in the manner in which they will be utilised. Keeping in view the sides and ends clearances required for each equipment, the total space is worked out. In hockey, for dribbling tactics, equipment, the spacing of pegs should be 5' c/c along the length of 6' c/c when arranged in two rows. 15' gap

TRAINING AREA

1. HOCKEY 1 TO 6
2. FOOT BALL 7 & 8
3. VOLLEY BALL 9 & 10



LEGEND:-

1 TO 3 WODDEN PEGS	7 WALL
4 RING	8 FOOTBALL BALLS
5 HOCKEY BALLS	9 WALL
6 BENCH	10 RING

TOTAL AREA REQD. FOR TRAINING = 97' x 170'
= 16,490 SQ. Ft.

FIG. NO. 4.3.t.

is required for movement of players among three sets of these pags. A 10' clearance is required all-around these equipment.

Volleyball equipment, require 30' clearance with each other to provide the depth of one volleyball court.

Kicking and heading equipment for football also required a space of 30' in the main approaching direction.

Based on these analysis the total area required for these equipment works out to be 97' x 170' = 16490 sq. ft. (Fig. No. 4.3.t).

C H A P T E R - V

CONCLUSION AND RECOMMENDATIONS

CONCLUSION AND RECOMMENDATIONS :

5.1 The Recommendations.

The results of this study and research work may be summerised in the following form, as ready references, regarding the various components of play fields and land requirements for games and sports, for an intermediate college in Meerut Division :

(a) Space standards

(i) One hockey field 165' x 300' (55 yds x 100 yds) is to be provided with the provision of two six-a-side hockey fields within the same field.

(ii) The total area required for a hockey field is 185' x 350' = 66,600 sq. ft.

(iii) One football field of 195'x330' (65 yds x 110 yds) is to be provided with the provision of two small fields, each six-a-side of 195' x 150' (65 yds x 50 yds), within the same field.

(iv) The total space of 215' x 390' = 83850 sq. ft. is to be provided for one football field.

(v) One cricket pitch having size of 10'x66' is to be provided.

(vi) The total area required for a pitch is 80'x156' = 12480 sq. ft.

(vii) No separate cricket ground is required as the hockey, football and athletic grounds shall be utilised for this purpose in case of any match.

(viii) Two volleyball courts, one for beginners practice, and another for matches and for superior players, each of 30' x 60', are to be provided.

(ix) Total area required for both volleyball courts works out to 123' x 120' = 14760 sq. ft.

(x) Two basketball courts, one for beginner and daily practice may be a clay court, and another for matches and for superior players, are to be provided. The latter is a cement court and each measures 46'x85'.

(xi) The total area required for both basketball courts, works out to 119'x97' = 11543 sq. ft.

(xii) One court for kabbaddi of 33' x 42' is to be provided.

(xiii) The total area required for one kabbaddi court works out to 53' x 72' = 3816 sq. ft.

(xiv) One Kho-kho court of the size 51' x 111' is to be provided.

(xv) The total area required for one Kho-kho court works out to be 71' x 131' = 9301 sq. ft.

(xvi) Two Tennis courts each of 36'x78' are to be provided, one for wall practice and for beginners, having 41' wide by 15' high brick wall with smooth cement plaster on both the surfaces, and having marked the profile of net on both sides, and another court for superior players and matches.

(xvii) The total area required for both tennis courts works out to be 96' x 108' = 10368 sq. ft.

(xviii) Two badminton courts are to be provided, each of 20' x 44' . Out of those two, one should be for beginners and will be outdoor and the other for

superior players and matches, preferably indoor, in multipurpose hall. If multipurpose hall in a college is of bigger size, both courts can be accommodated, if possible. In cases, where multipurpose hall is not existing, the court should be located in such a place where the wind velocity is minimum and controlled by building blocks (low pressure zone), but this arrangement should only be for a small period.

(xix) The minimum height of the hall for indoor badminton court should not be less than 22' and other details like of light, ventilation and flooring should be done as per the requirements of the game.

(xx) The total area of each badminton courts works out to be 32' x 64' = 2048 sq. ft.

(xxi) One table tennis table of size 5'x9' is to be provided in each intermediate college.

(xxii) The total area required for one Table tennis table works out to be 15' x 25' = 375 sq. ft.

(xxiii) The table tennis table, should either be placed in multipurpose hall or a separate room of floor-area not less than 20' x 30', designed to suit the playing requirements.

(xxiv) An open-air, Gymnasium of total area of 128'x164'-6" = 21056 sq.ft. accommodating all gymnastics equipment including 29'x29' = 841 sq.ft. space for wrestling, is to be provided.

(xxv) Competitions in wrestling can be held in multipurpose hall where mat of 24' x 24' for wrestling can be easily accommodated.

(xxvi) A 440 yds (400 metres) Athletic track is to be provided. Spaces for all athletic events are provided and marked separately in the area within the track. Rectangular area for one track works out to be 313'x 577'-6".

(xxvii) The total area required for an athletic track works out to be 346' x 611-6" = 2,11,579 sq. ft.

(xxviii) A plunge bath for swimming of area 42'x75' is to be provided. The water depth in the plunge bath is to be kept as 3'-6".

(xxix) The total area for a plunge bath works out to be 52' x 95' = 4940 sq. ft.

(xxx) A rectangular space of 97'x170' = 16,490 sq. ft. for erecting all training equipments for hockey, volley-ball and football is to be provided.

(xxxi) There is no need to provide a separate space, for mass physical training, Rhythms, combative exercises, and for other minor games, because the hockey, foot-ball and athletic grounds will be utilised to perform these activities.

Table showing the number of students engaged at a time and the total area required for games & sports for an Intermediate College

Activities	No. of students engaged	No. of grounds/ courts	Area per unit in Sq. ft.	Total area in Sq. ft.
Hockey	22	1	66600	66600
Football	22	1	83850	83850
Cricket	22	1 pitch	12480	12480
Volleyball	24	2	7200	14760
Basketball	20	2	5626	11343
Kabbaddi	14	1	3816	3816
Kho-Kho	18	1	9301	9301
Tennis	8	2	5184	10368
Badminton	8	2	2048	4160
Table Tennis	4	1 table	600	600
Gymnastics	55	1	21056	21056
Swimming	10	1	4940	4940
Athletics	60	1 track	211579	211579
Training Area	15	1	16490	16490
Total	302			471363

Taking into consideration that 6% area will be required for adjustment in the planning of these playgrounds and courts, which comes out = 23568.25 Sq. ft

Thus total area required = 471363+23568.25 = 494931.25 " "

= 11.36 Acres Say = 11.50 Acres.

As shown in table above taking into consideration that 300 students can be engaged at a time, and there shall be two shifts of 2 periods (45 minutes each) each per day and each student doing two activities per day(one period each activity), all the 600 students shall be engaged daily. Activities (games and sports) shall be conducted on all the seven days of the week so all the fourteen activities shall be covered in a week.

(b) General Recommendations.

(i) It is not possible to provide a full-size swimming and diving pool in every college due to economic reasons. If facilities of swimming and diving are available in city or town as in case of Roorkee, arrangements should be made to avail of the same. Where, it is not possible, a swimming and diving pool may be provided for a group of colleges. The size of such a pool may be kept the same as that of olympic size i.e. 50 M x 21 M with diving board facilities.

(ii) Timing for swimming should be fixed either in the first, and the last periods or before and after the college hours, as suits. Special classes can also be arranged on Sundays or holidays.

(iii) Lockers, toilets, and changing rooms should be provided alongwith the college building, keeping them close to the multipurpose hall and other play fields, and also near to plunge bath/swimming pool.

(iv) The allotment of periods in the time table for games, sports, and physical education may be as under, so as to fulfil the requirements for the same, as specified in the syllabus of National Fitness Corps (Ministry of Education, Government of India).

(a) Class VI to VIII - Not less than 5 periods per week, 40 to 50 minutes per period (including one period per week for mass physical education).

(b) Class IX and X - Not less than 4 periods per week, 40 to 50 minutes per period (including one period for mass physical education).

(c) Class XI and XII - Not less than 3 periods per week, 40 to 50 minutes per period (including one period for mass physical education).

(v) The suitable periods for activities of games, sports and physical education may be as follows, to avoid the hot period, as far as possible :

(a) College with Noon session. .. 5th, 6th, 7th and 8th periods.

(b) College with Morning.. session. 1st, 2nd, 3rd and 4th periods.

(c) College with Morning.. and Afternoon session. 1st, 2nd, 7th & 8th periods.

(vi) A class of 30 to 35 pupils should constitute the unit for instruction periods. If it is not possible, due to lack of staff, one teacher should carry on his work of two classes by side by side with the

help of a pupil leader, but it should be in exceptional cases only, and not always.

(vii) There should be a full-time teacher of physical education, games and sports having atleast a degree in physical education, or trained from the N.I.S., for every 250 to 350 pupils in number. One teacher for every additional 250 pupils, should be appointed. For a college of 600 pupils, there should be atleast two full time teachers.

(viii) Teachers, as well as students, should attend the periods of games, sports, and physical education in proper uniform.

(ix) All able-bodied students should be required to put in atleast 75% attendance every year in games, sports and physical education classes.

(x) There should be a programme of mass physical education for all students and teachers once in a week for one period.

(xi) Tests and written examinations in games, sports, and physical education should be held periodically as well as alongwith the terminal examinations, and those marks should be counted in declaring the position, and percentage of marks obtained by a student in a class.

(xii) Physical education (including games and sports) should be introduced as an optional subject in

college, like other subjects.

(xxiii) Games and sports should be practised before or after college hours regularly, and compulsorily.

(xiv) Those students who fail to attend games and sports in any period without permission, should be fined in terms of cash and this fine should go to games fund.

(xv) Time-table for games, sports and physical education should be properly divided in two parts (a) instructional and (b) practical. The teaching plan should be prepared in the same way as that of other subjects.

(xvi) Medical inspection of every student should be held annually, and the medical history sheet of every student should be maintained, and should be available to the teacher of physical education.

(xvii) Intra-mural competitions should be arranged, and conducted under the guidance of teachers with the help of students.

(xviii) A games and sports week should be arranged every year in each college.

(xix) Team practice and special coaching for players and sportsmen should be arranged in their respective events.

(xx) Every opportunity should be provided for college teams to compete with other college teams by arranging inter-college tournaments at city, town and block level.

(xxi) Some preference in admission, to colleges, should be given to players and sportsmen.

(xxii) To encourage games and sports, and to creat interest in games and sports among students, players and sportsmen should be honored.

(xxiii) Apart from the games fee charged fromstudents, different functions, fairs and fotes be arranged in colleges to collect money for games and sports fund.

(xxiv) Teachers of all colleges should also take active part in games and sports to encourage and attract students towards these activities.

(xxv) Specialised central coaching camps should be arranged for different games and sports either during holidays or at any other/suitable time, at the city, town and block level.

(xxvi) Tours should be arranged for the players and sportsmen to see tournaments and sports meets.

(xxvii) Film shows on games, sports and physical education be arranged in colleges or in city picture halls for students.

(xxviii) A sports medicine instructor/doctor should be appointed at city, town and block level, to teach correct method of exercises and to prevent injuries during practice and matches.

(xxix) Adequate water supply should be maintained for the

irrigation of lawns, play fields and grounds.

(xxx) Annual maintenance (in addition to daily or weekly) of play fields, courts and apparatus should be done regularly, every year, preferably in summer & vacations when colleges are closed or at any other proper time.

(xxxi) Recognition should not be given to any college unless it possesses adequate open area for play grounds.

5.2 Need for Further Research And Timely Changes.

The subject has its importance with regard to development of games and sports, and to improve standards in the colleges as well as in the country in order to build-up a strong and mighty society and nation. Every individual component of the subject itself, is subject matter for research and needs further study. Provision of adequate facilities and having a balanced programme for games and sports in colleges is not sufficient. It requires frequent observations and studies, so as to cope with the need of the times, and to find out as to what is happening at other places, and what developments have already taken place.

Techniques and curriculum go on changing according to the age, and development in the field of science and technology. These have to be watched carefully, and if found suitable, they should be adopted and watched as to how suitable they actually are.

All results considered in this report require detailed study for their practical application to produce fruitful results, and without these experimental tests the subject is incomplete until unless the feasibility of programme and its effectiveness is studied carefully.

There is a vast scope for further research and timely changes in the problems relating to games and sports like; Administrative and Organisational studies, Statistical, Physiological, Psychological and Sociological studies.

The fast changing techniques and mode of approach and adoption, have great impact on the system of teaching games, sports and physical education, which requires a review of these studies from time to time in order to suggest timely changes, so that this study may be helpful in the multisided development of society of a particular time for which it is being applied.

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APPENDICES

APPENDIX - I

Conditions Laid Down By The Education Department And Board Of High School And Intermediate Education, Uttar Pradesh, In Education Code (1958).

The students in all secondary and primary schools are classified according to the stages and instructions as indicated below :-

(a) Pre-Basic Stage - Nursery education.

(b) Junior-Basic (Primary) Stage classes I - V.

(c) Senior Basic (Junior High School) Stage VI - VIII.

(d) High School IX - X.

(e) Intermediate XI - XII.

Recognised institutions are divided according to the system of control into two categories :-

(1) Under Public Management.

(i) Government institutions are public institutions managed by the Education Department of the State Government.

(ii) District Board institutions are institutions which are managed by District Board.

(iii) Municipal Board's institutions are institutions which are managed by Municipal Board.

(2) Under Private Management.

(i) Aided institutions are private but recognised institutions which receive grant in aid from public funds, either from the Government or from the local bodies (District Boards, Municipal Boards, or by a Trust etc.)

(ii) Unaided - institutions are those which receive no assistance whatsoever from public funds and differ from private institutions mainly in being recognised by the Department.

For the supervision, inspection and control of educational institutions for boys the state is divided into eight regions :-

I	Meerut Region	V	Varanasi Region
II	Agra Region	VI	Lucknow Region
III	Bareilly Region	VII	Gorakhpur Region
IV	Allahabad Region	VIII	Nainital Region.

Seven of these regions are under a Deputy Director of Education separately with headquarters at Meerut, Agra, Bareilly, Varanasi, Lucknow and Gorakhpur. Nainital region is directly under the Control of a Regional Director.

Recognised Higher Secondary Schools.

(1) 'The Course of Study' are prescribed, for classes IX to XII by the Intermediate Board, and those of classes VI to VIII by the Department and are the same as prescribed for senior basic (junior high) schools.

(2) Language To Be Used - (a) The teacher should ordinarily use the Hindi language in conversation. When he is doubtful whether particular boys have clearly understood him he may express himself in English. (b) Technical and scientific terms may be in English if no equivalent terms in Hindi are available.

(3) Physical Training -

(a) One whole-time qualified physical training instructor shall be provided in every higher secondary school, and every student receives physical training at least three periods a week in junior high school classes and two periods a week in higher secondary school classes. Attendance should be

taken, and those found absent, unless exempted by the head of the institution should be punished by fine or otherwise. Students who fail to attend the games for less than 60% of the period allotted for the purpose, unless they have been exempted by the head of the institution, shall not be promoted to the next higher class.

(b) A student may be given exemption for the whole session or part thereof from attendance of games or physical training periods by the head of the institution on grounds of physical disability or illness.

(c) Heads of institution are authorised to charge a monthly fee for games and physical exercises from every student according to the following scales:-

Class VI to VIII	.. 19 Paise per mensem.
Class IX and X	.. 25 Paise per mensem.
Class XI and XII.	.. 37 Paise per mensem.

No fee shall be levied from the scheduled caste students who are exempted from the payment of tution fees.

(d) Games fees may be increased upto 50% with the sanction of the District Inspector/Regional Inspectress.

(e) Games fine realised from students shall be credited to the games fund.

(f) Heads of institutions may accept subscription towards the formation of a games fund.

(g) Detailed accounts of the games fund shall be duly kept and be available for the inspection of the District Inspector/Regional Inspectress.

(h) The games fund is intended for expenditure on games (including scouting and red-cross work) or recreation of students.

(i) In addition to games, provision should be made for regular drill and physical exercises in at least classes VI to VIII.

(j) It is desirable for reasons of health that boys should change their cloth for games. A 'Banian' and shorts are recommended as being economical and suitable.

(4) School Health Officers -

(a) In the towns of Lucknow, Varanasi, Kanpur, Allahabad, Agra, Jhansi, Faizabad, Gorakhpur, Saharanpur, Moradabad, Bareilly, Shahjahanpur, Meerut and Dehradun, whole-time School Health Officers are required to inspect the health of students in all recognised institutions (aided or unaided). In all other towns where Municipal or District Medical Officers of Health exist, these officers are required to inspect the health of students only in recognised aided institutions and are ex-officio School Health Officers for such institutions.

(b) It is the responsibility of the head of the institution to ensure that the medical history sheet is maintained for every student in the institution.

(c) In case of transfer of students from an institution, the students medical history sheet should also be transferred with his transfer certificate.

(d) A medical fee of 6 paise per mensem will be charged from every student (except students belonging to the scheduled castes and the free and half-free students) reading in the Government and non-Government recognised institutions in the 14 towns referred to above and deposited in the Govern-

ment Treasury.

(5) Admission of Students -

(a) The head of the institution will limit the admissions into any class or section of a class to the number of students for which there is accommodation in the class room, subject to maximum -

i)	VI to VIII	.. 35 students
ii)	IX and X	.. 40 students
iii)	XI and XII	.. 50 students.

(b) Ordinarily no student is admissible to class VI until he has completed his ninth year.

(c) A student shall not be admitted to any recognised institution, if his age on 15th May following the date on which admission is sought will exceed -

In case of admission to		Age
Class VI	..	13 years
Class VII	..	14 years
Class VIII	..	15 years
Class IX	..	16 years
Class X	..	17 years

APPENDIX - XX

Table No. 1 (List of colleges).

1. Guru Ram Rai Inter College, Dehradun.
2. Guru Nanak Inter College, Doiwala (Dehradun).
3. Bharat Mandir Inter College, Rishikesh (Dehradun).
4. Jai Bharat Inter College, Chhapar (Muzaffarnagar).
5. Kisan Inter College, Shamli (Muzaffarnagar).
6. D.A.V. Inter College, Budhana (Muzaffarnagar).
7. Picket Inter College, Khatauli (Muzaffarnagar).
8. S.D. Inter College, Muzaffarnagar.
9. Swami Kalyan Dev Inter College, Bhopa (Muzaffarnagar).
10. N.K. Inter College, Mawana (Meerut).
11. Shambhu Dayal Inter College, Ghaziabad (Meerut).
12. B.A.V. Inter College, Meerut.
13. C.A.B. Inter College, Meerut.
14. Govt. Inter College, Meerut.
15. A.N.S. Inter College, Sardhana (Meerut).
16. D.A.V. Inter College, Bulandshahr.
17. Sharma Inter College, Bulandshahr.
18. Bhaipur Brahmana Inter College, Bhaipur(Bulandshahr).
19. Dhanaura Inter College, Dhanaura (Bulandshahr).
20. Bhalla Inter College, Hardwar (Saharanpur).
21. B.D. Bajoria Inter College, Saharanpur.
22. K.L.D.A.V. Inter College, Roorkee (Saharanpur).
23. Govt. Inter College, Roorkee (Saharanpur).
24. Janta Inter College, Laksar (Saharanpur).
25. Central School (Kendriya Vidyalaya), Roorkee(Saharanpur).

The serial numbers with the name of colleges will indicate the name of the college wherever used in this report.

Table No. 2

Strength of college, period for P.T. - Games and Sports, Games and Sports compulsory or not and participation percentage.

Particulars College	Strength (1971-72)	Period per week.	Compulsory or not.	Participation percentage.
1	1300	3-4	only	10
2	1100	4		8
3	1250	4		11-12
4	930	4-5		15
5	1050	3		6
6	920	4		7
7	850	4		5
8	1100	-	in	4
9	830	3		12
10	560	2-3		8
11	670	3-4		24
12	690	4		10
13	640	2-3		20
14	750	3		5
15	805	4		10
16	1500	3	central	8
17	1000	6		20
18	2000	6		22
19	700	1-2		30
20	289	-		16
21	950	-		11
22	1900	3		10
23	650	3-5		35
24	1407	3	schools	6
25	850	3		95

1. From class VI to X only.

Table No. 3

Number of Play Grounds/Courts available for Athletics, Hockey, Football and Volleyball.

Particulars / Colleges	Athletic Track.	Hockey Ground.	Football Ground.	Volleyball Court.
1	-	1	-	1
2	-	1	-	-
3	-	1	-	1
4	1 (400M)	1	-	1
5	-	-	-	1
6	-	-	-	-
7	-	-	-	-
8	-	-	-	-
9	-	1	1	1
10	1 (200M)	1	-	1
11	1 (200M)	-	1	3
12	1 (200M)	-	2	2
13	1 (400M)	-	-	1
14	1 (200M)	-	1	1
15	1 (200M)	-	1	1
16	-	-	1	-
17	-	1	1	1
18	-	1	-	2
19	1 (200M)	-	-	3
20	1 (200M)	-	-	1
21	-	-	1	-
22	-	-	1	1
23	-	1	1	1
24	-	-	-	1
25	-	1	1	1
Total[1]	9	10	11	19
Percentage[2]	36%	40%	44%	76%

1. Total number of colleges in which grounds/courts exist.

2. Percentage of colleges in which grounds/courts exist.

Table No. 4

Number of play grounds/courts available for Kabbaddi, Cricket, Basketball and Tennis.

Particulars / Colleges	Kabbaddi Court	Cricket Pitch	Basket ball Court	Tennis Court
1	-	-	-	-
2	-	-	-	-
3	-	-	-	-
4	-	-	-	-
5	-	-	-	-
6	-	-	-	-
7	-	-	-	-
8	-	-	-	-
9	1	-	-	-
10	1	-	-	-
11	1	-	-	-
12	1	-	1	1
13	1	-	-	-
14	1	-	1	-
15	2	-	-	-
16	-	-	-	-
17	1	1	-	-
18	-	-	-	-
19	1	1	1	-
20	1	-	-	-
21	-	-	-	-
22	-	-	1	-
23	-	1	-	-
24	1	-	-	-
25	1	-	1	-
Total[1]	12	3	5	1
Percentage[2]	48%	12%	20%	4%

1. Total number of colleges in which grounds/courts exist.

2. Percentage of colleges in which grounds/courts exist.

Table No. 5

Hall/Room available for Table Tennis and Badminton.

Particulars	Table Tennis	Badminton
Colleges	Hall/Room	Hall/Open court
1	-	-
2	1 (Room)	1 (Open court)
3	-	1 (Open court)
4	-	-
5	-	1 (Open court)
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	1 (Room)	4 (Open courts)
13	-	-
14	-	-
15	-	-
16	-	-
17	1 (Room)	1 (Open court)
18	-	-
19	-	-
20	-	-
21	-	-
22	1 (Room)	1 (Hall)
23	1 (Hall)	1 (Open court)
24	-	-
25	-	2 (Open courts)
Total[1]	6	6
Percentage[2]	20%	32%

1. Total number of colleges in which halls/rooms exist.

2. Percentage of colleges in which halls/rooms exist.

Table No. 8

Equipment and Apparatus available for Athletics, Hockey, Football and Volleyball.

Particulars Colleges	Athletic	Hockey	Footbal	Volley-ball
1	A.	N.A.	N.A.	A
2	N.A.	A	A	A
3	N.A.	A	A	A
4	A	N.A.	A	A
5	N.A.	N.A.	A	A
6	N.A.	N.A.	A	A
7	N.A.	N.A.	A	A
8	N.A.	N.A.	N.A.	A
9	N.A.	A	A	A
10	N.A.	N.A.	A	A
11	N.A.	N.A.	A	A
12	A	A	N.A.	A
13	A	A	N.A.	A
14	N.A.	A	N.A.	A
15	A	N.A.	N.A.	A
16	N.A.	N.A.	N.A.	A
17	A	A	A	A
18	N.A.	N.A.	N.A.	A
19	A	N.A.	N.A.	A
20	N.A.	A	A	A
21	N.A.	A	A	A
22	A	A	A	A
23	A	A	A	A
24	A	A	A	A
25	A	A	A	A
Total[1]	11	13	16	25
Percentage[2]	44%	52%	64%	100%

1. Number of colleges in which equipment/apparatus exist.

2. Percentage of colleges in which equipment/apparatus exist.

A - Available.

N.A. - Not available.

Table No. 7

Equipment and Apparatus available for Cricket, Table Tennis, Basketball and Badminton.

Particulars / Colleges	Cricket	Table Tennis	Basketball	Badminton
1	N.A.	N.A.	A	A
2	N.A.	A	N.A.	A
3	A	N.A.	N.A.	A
4	N.A.	A	A	A
5	A	N.A.	N.A.	A
6	N.A.	N.A.	A	A
7	N.A.	N.A.	N.A.	N.A.
8	N.A.	N.A.	N.A.	N.A.
9	N.A.	N.A.	N.A.	A
10	N.A.	N.A.	N.A.	N.A.
11	N.A.	N.A.	N.A.	N.A.
12	A	N.A.	A	A
13	A	A	A	A
14	N.A.	N.A.	N.A.	A
15	N.A.	N.A.	N.A.	A
16	A	N.A.	N.A.	A
17	N.A.	A	N.A.	A
18	N.A.	A	A	A
19	A	N.A.	A	A
20	N.A.	N.A.	N.A.	A
21	N.A.	N.A.	A	A
22	A	A	A	A
23	A	A	A	A
24	A	A	A	A
25	A	A	A	A
Total[1]	10	9	12	21
Percentage[2]	40%	33%	48%	84%

1. Total number of colleges in which equipment/apparatus exist.

2. Percentage of colleges in which equipment/apparatus exist.

A - Available

N.A.- Not available

Table No. 8

Equipment and Apparatus available for Tennis, Swimming, Wrestling and Boxing.

Particulars / Colleges	Tennis	Swimming	Wrestling	Boxing
1	N.A.	N.A.	N.A.	N.A.
2	N.A.	N.A.	N.A.	N.A.
3	N.A.	N.A.	N.A.	N.A.
4	N.A.	N.A.	N.A.	N.A.
5	N.A.	N.A.	N.A.	N.A.
6	N.A.	N.A.	N.A.	N.A.
7	N.A.	N.A.	N.A.	N.A.
8	N.A.	N.A.	N.A.	N.A.
9	N.A.	N.A.	N.A.	N.A.
10	N.A.	N.A.	N.A.	N.A.
11	N.A.	N.A.	N.A.	N.A.
12	N.A.	N.A.	N.A.	N.A.
13	A	A	N.A.	N.A.
14	A	A	N.A.	N.A.
15	N.A.	N.A.	N.A.	N.A.
16	N.A.	N.A.	N.A.	N.A.
17	N.A.	N.A.	N.A.	N.A.
18	N.A.	N.A.	N.A.	N.A.
19	N.A.	N.A.	N.A.	N.A.
20	N.A.	N.A.	N.A.	N.A.
21	N.A.	N.A.	N.A.	N.A.
22	A	A	N.A.	N.A.
23	A	A	N.A.	N.A.
24	N.A.	N.A.	N.A.	N.A.
25	A	A	N.A.	N.A.
Total[1]	6	6	0	0
Percentage[2]	20%	20%	0%	0%

1. Total number of colleges in which equipment/apparatus exist.

2. Percentage of colleges in which equipment/apparatus exist.

A - Available

N.A.- Not available.

Table No. 9

Equipment and Apparatus available for Rhythms (Lezim, Dumb-bell, Hoops and Band) and Combative (Lathi, Jambia and Pari-gadka.

Particulars / Colleges	Rhythms	Combative
1	N.A.	N.A.
2	N.A.	N.A.
3	N.A.	N.A.
4	N.A.	A
5	N.A.	N.A.
6	A	N.A.
7	N.A.	N.A.
8	N.A.	N.A.
9	A	N.A.
10	N.A.	N.A.
11	N.A.	N.A.
12	A	N.A.
13	A	A
14	N.A.	N.A.
15	N.A.	N.A.
16	N.A.	N.A.
17	N.A.	N.A.
18	A	N.A.
19	A	A
20	N.A.	N.A.
21	N.A.	N.A.
22	A	N.A.
23	A	A
24	N.A.	N.A.
25	A	A
Total [1]	9	5
Percentage [2]	36%	20%

1. Total number of colleges in which equipment/apparatus exist.

2. Percentage of colleges in which equipment/apparatus exist.

A - Available

N.A.- Not available.

Table No. 10

Equipment and Apparatus available for Gymnastics, Literature on Games and Sports, Physical Training Instructor (P.T.I.) and Gardner (Mali).

Particulars / Colleges	Gymnastic	Literature	P.T.I.	Gardner
1	N.A.	N.A.	1	1
2	N.A.	N.A.	1	1
3	N.A.	N.A.	1	1
4	A	A	1	2
5	N.A.	N.A.	1	1
6	N.A.	N.A.	1	1
7	N.A.	N.A.	1	1
8	N.A.	N.A.	1	1
9	N.A.	N.A.	1	1
10	N.A.	N.A.	1	1
11	N.A.	N.A.	1	1
12	N.A.	N.A.	1	1
13	A	A	1	2
14	N.A.	N.A.	1	1
15	N.A.	N.A.	1	1
16	N.A.	N.A.	2	1
17	N.A.	N.A.	2	1
18	N.A.	N.A.	3	1
19	N.A.	N.A.	2	1
20	N.A.	N.A.	1	1
21	N.A.	N.A.	1	1
22	N.A.	N.A.	1	1
23	A	A	2	2
24	N.A.	N.A.	1	1
25	A	A	2	1
Total[1]	4	4	25	25
Percentage[2]	16%	16%	100%	100%

1. Total number of colleges in which equipment/literature/staff exist.

2. Percentage of colleges in which equipment/literature/staff exist.

A - Available

N.A.- Not available.

APPENDIX - III

Proforma for the survey of Intermediate Colleges for the thesis project on " Games & Sports Facilities in India ", space standards for playgrounds for boys with particular reference to Meerut Division in U.P.

1. District : Dehradun, Saharannur, Muzaffarnagar, Meerut and Bulandshahr.
2. Name of College :
3. Type of College : Science/Art.
4. Governing body : Govt./Semi-Govt./Trust/Private.
5. Total number of students :
6. Ultimate strength :
7. Under Rolled/Over Rolled:
8. Financial Resources : (i) Government aided
   (ii) Trust aided
   (iii) Private aided
   (iv) Any other resource.
9. Total grant for sports per year :
10. Allotment of Funds for different games per year.

Activities	Amount
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

11. Total area of College : (i) Covered Sq.ft.
    (ii) Open Sq.ft.
12. Games & sports facilities :

Playground/Courts	Nos.
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Type of Apparatus & Equipment

Activities	Nos.
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

13. Popular Games of the College

1.
2.
3.
4.
5.
6.
7.
8.

14. Participation percentage of students in games. :
15. Staff available : (i) Coaches/Instructors.
    (ii) Gardener (Mali).
16. Time table for games & sports :

Classes	No. of periods per week
VI	
VII	
VIII	
IX	
X	
XI	
XII	

17. Games compulsory : Yes/No
18. Literature on sports :

Particulars	Nos.
Books	
Magazines	
Any other	

19. Participation in tournaments :

1.
2.
3.
4.
5.
6.
7.
8.

20. General Remark :

-