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ABSTRACT

The purpose of this publication is to identify significant considerations in the planning of dressing-locker rooms and related service facilities such as shower rooms, toilet and lavatory rooms, toweling areas, storage and supply rooms, laundries, training and first aid rooms, and custodial facilities. However, only a perfunctory treatment of each aspect has been attempted. Used in conjunction with the listed references and up-to-date information available from architects, the material contained here should provide a sound foundation for planning these facilities. A related document is EA 004 349. (Author)

DRESSING ROOMS & related service facilities for physical education, athletics, and recreation

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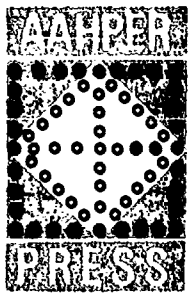

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PREFACE

This publication is one of a series planned by the Committee on Facilities of the American Association for Health, Physical Education, and Recreation Council on Facilities, Equipment, and Supplies, General Division.

The task force which prepared the material for this book consisted of Lee Ragsdale chairman, Portland State University, Portland, Oregon; James W. Long, Oregon State University, Corvallis; Roy J. Keller, University of Illinois, Champaign; and Carl A. Peterson, University of Pittsburgh, Pittsburgh, Pennsylvania.

The purpose of the publication is to identify significant considerations in the planning of dressing-locker rooms and related service facilities. Comprehensive treatment of each aspect has not been attempted. Used in conjunction with the listed references and up-to-date information available from architects, the material contained here should provide a sound foundation for planning these costly and important facilities.

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INTRODUCTION

The purpose of service areas in a gymnasium is to assure health, safety, and convenience as well as to enhance the effectiveness of programs conducted in the facility. Service areas include dressing-locker rooms, shower rooms, toilet and lavatory rooms, toweling areas, storage and supply rooms, laundry, training and first aid rooms, and custodial facilities.

The nature and extent of service facilities will vary greatly from one situation to another. High school and college athletic and physical education programs vary in size, resources, and program requirements, all of which should be reflected in facility planning. A fair generalization is that, the fewer the resources in relation to the needs, the more important it is to achieve flexibility of use and functional effectiveness in the completed service areas. These areas are costly to build and should be designed with the utmost care and imagination.

CHAPTER 1 GENERAL PURPOSE DRESSING-LOCKER ROOMS

Location

The locker room should serve both outdoor and indoor areas efficiently. Usually it would be located at ground level, but there are instances in which the teaching stations and total activity areas are better served from the basement level. Routes from dressing rooms to activity areas should be determined after the above relationships have been established.

It is necessary to have direct access from the dressing room to the shower room, to the swimming pool, for the facility's regular users. However, should the pool be used extensively by other schools or for public recreation, separate dressing and shower rooms should be built. These additional facilities offer greater flexibility of use and better control of sanitation and student activity. (See Figure 1 for an example of flexible-use shower rooms.)

Entries from outdoor activity areas should have special drains with mud crocks to properly drain excess mud from shoes and uniforms. Provision should be made for hosing the mud removal area. In wet climates the mud removal area should be equipped with multiple hose bibs. The entire area can be outside the building and protected by a cover, if desired.

Size

The dressing-locker room should be large enough to handle the peak load, not only for the present, but also for any projected enrollment increases. Space should be included for use by physical education classes, physical education faculty, graduate assistants, the general school faculty, student recreation, intramural sport participants, and interscholastic athletic participants, coaches, and officials. The manner in which the facility is to be used should be carefully considered, for this determines the extent to which various dressing areas can serve multiple purposes. A minimum of 20 square feet per person is recommended. The utility of this space can be enhanced by the wise selection of room dimensions and arrangement.

Once the peak loads for various dressing rooms have been determined, the type, size, and arrangement of dressing lockers, benches, and clothing storage units must be decided. Only after this has been done should the overall dimensions of the rooms be set. The size and shape of the dressing room must be determined by what it needs to contain and how it is to function rather than by a generalized formula. Sample layouts should be studied to assure that needs will be met.

Floors and Drainage

Dressing room floors are usually concrete or some type of tile. Some schools are now using the new synthetic carpeting over concrete in their dressing rooms. Carpeting affords good footing, pleases the eye, and reduces traffic noise. The cost of maintenance is greater than for hardened concrete, as carpeting requires regular vacuuming and periodic shampooing. Damaged spots in the new synthetic carpets are easily repaired. Vinyl tile floors are attractive but become slick when wet and do not last long under cleat shoes and other hard uses. They are not recommended. Bare concrete floors should be treated with a hardener to make them

Methods of Using Flexible Shower Rooms

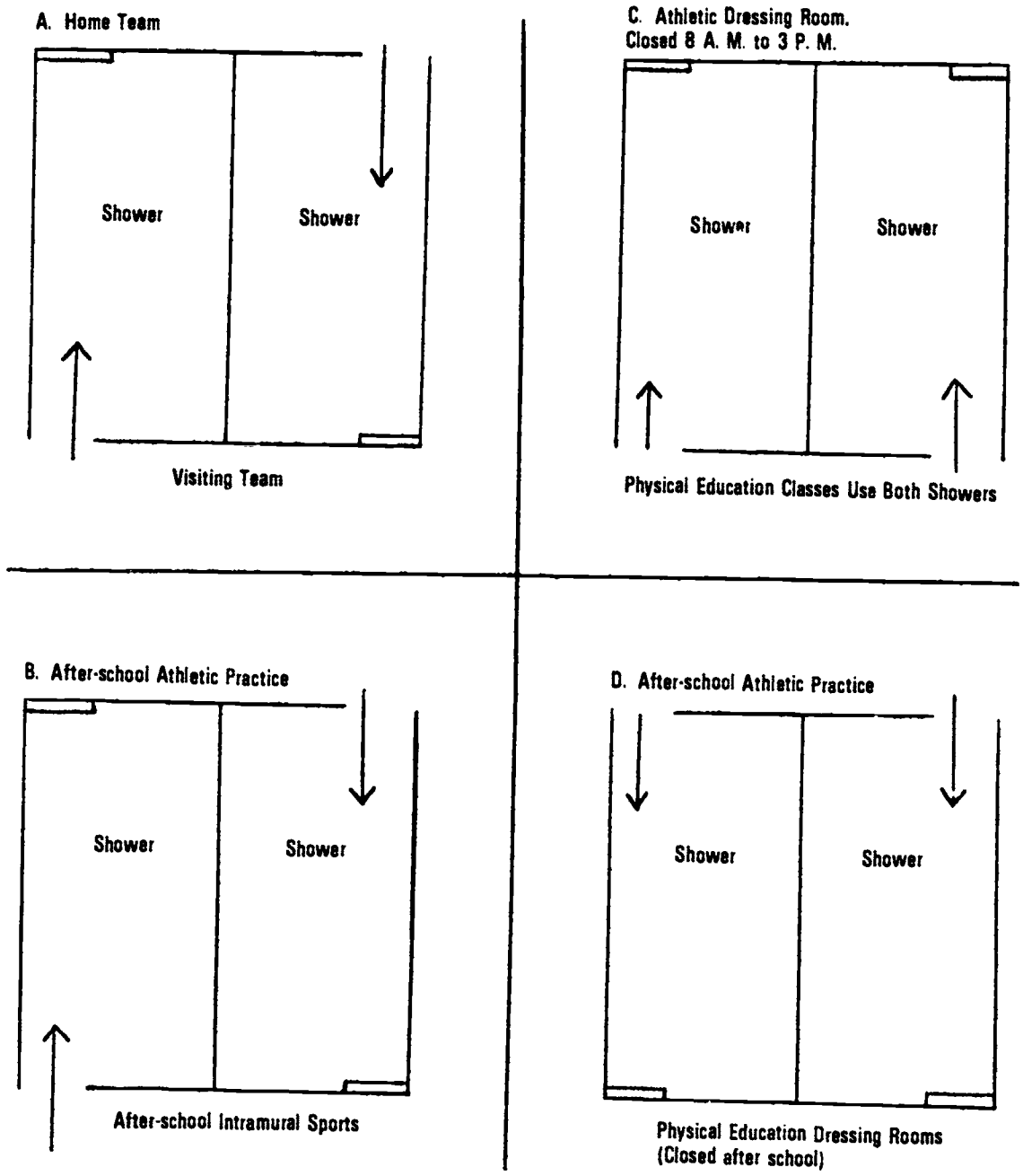


Figure 1.

impervious to moisture and odors. Hardened concrete floors are less costly than ceramic or quarry tile floors and are considered satisfactory in most cases. Floors should be impregnated with an abrasive for a nonskid surface and properly sloped toward drains with no low spots which might hold water. Drains must be properly located for efficiency. Hose bibs are needed to facilitate cleaning of concrete or tile floors. They should be recessed and located near the floor. Carpeted dressing room floors do not require floor drains, but proper heating and ventilation are necessary to hasten drying and prevent mildew or fungus growth.

A July 1969 survey of representative colleges and universities revealed that, of 31 respondents, 22 had concrete dressing room floors in their new facilities. The concrete floor was rated satisfactory by 18 of these schools. Some sort of ceramic tile or terrazzo floor was reported by 8 respondents, with all but one rated as satisfactory. The one university with carpeting was pleased.

Walls, Ceilings, and Lighting

Walls should be moisture resistant, easily cleaned, and pleasant to the eye. All structures, including walls, should be coved at their juncture with the floor. All corners should be rounded.

Ceilings should be impervious to moisture and should be acoustically treated. Ceiling colors should be light.

Lighting should be 30-footcandles of illumination on tasks, and the lights should be centered directly above the spaces between locker banks. Light fixtures should be vapor-proof. Vapor-proof electrical outlets should be located in appropriate places approximately three feet above the floor. All switch boxes and terminals should be grounded. All electric outlets, plugs, and electrical appliances should be equipped with three-prong plug inlets. Electric installations should be inspected regularly. Dressing room lights should be controlled from a central switch box. Emergency lights should be on at all times.

Reference should be made to chapters 4 and 9 of the publication, *College and University Facilities Guide,* 1968. Chapter 4 contains standards and recommendations for materials, illumination, and special wiring for various gymnasium areas.

Accessories

Mirrors should be located in appropriate places throughout the dressing room and should include one or more full-length mirror. A good location for full-length mirrors is near dressing room exits to allow for grooming inspection when users leave the area. Stainless steel or durable metal alloy shelving should be provided below mirrors in the main vanity areas. Single-sheet toilet paper dispensers should be located in the main vanity area of women's dressing quarters for blotting lipstick.

Drinking fountains should be distributed throughout the area in locations convenient to the normal traffic patterns and should be recessed for safety. Stainless steel drinking fountains provide maximum durability.

Hair dryers are especially important when swimmers use the dressing room. For men, electric hand dryers attached to walls of the toweling or lavatory areas are adequate for hair drying. Women can be served adequately by these hand dryers, but at least two other options should be considered. One of these is wall-mounted blowers located 5 to 5½ feet from the floor and spaced at 3- to 4-foot intervals. If space and budget permit, separate hooded blowers should be provided. Either benches or chairs may be used in conjunction with hooded blowers. One dryer for four to five men is sufficient, but there should be approximately one hood dryer for every three women swimmers.

Dressing booths should be kept to a minimum and should be located near private showers. One or two private booths may be desired in women's locker rooms.

Dressing facilities for the handicapped should be planned. These facilities must be integrated with toilet, lavatory, and shower units for maximum utility. American standard specifications for making facilities usable by the physically handicapped are contained in Appendix G of *College and University Facilities Guide,* 1968, pp. 155-169.

CHAPTER 2 SPECIAL PURPOSE DRESSING ROOMS

Athletic Dressing Rooms

Athletic dressing rooms should provide easy access to activity areas and be adaptable to whatever sport is in season. Consideration should be given to varying the size of dressing rooms for athletic teams with different squad sizes and amount of gear required for each man. A small room or two for small squads provides security and privacy at a minimum cost. When a program is growing rapidly, or there is doubt as to the precise needs of the athletic teams, it is most economical to construct large dressing areas which can be partitioned into smaller sections at nominal cost when a need arises. An economical means of partitioning is to install lockers with chain link partitioning firmly attached to their tops and to the ceiling.

An athletic dressing complex should include rooms for visiting teams and game officials. Officials should not have to pass through players' dressing rooms to reach the playing areas. Both officials' and visitors' dressing rooms should have their own shower and toilet facilities for privacy and convenience. It is recommended that these facilities be constructed so that they can be used for other purposes during the school day.

Dressing rooms for coaches should contain shower and toilet facilities as well as whatever office furniture is needed. If the coaches' regular offices are located some distance from the dressing room, it is important to have a desk and filing cabinets in or adjacent to the dressing room for convenience. An office apart from the dressing quarters is especially convenient for conferences with individual players or coaches.

Women's intercollegiate and interscholastic athletic programs are more closely associated with the physical education program than are men's athletics. It should be both feasible and practical to accommodate visiting teams in the regular multipurpose dressing and shower facilities. Provisions should be made to assign transient lockers to individual players, or to provide other measures for the protection of personal possessions and team equipment. Large dressing rooms may be utilized in sections that can be locked off as needed to provide for small group or team use. The regular women's faculty dressing and shower facilities should be adequate for the women coaches.

Faculty Dressing Rooms

Schools and colleges of any size need to provide dressing quarters for the general faculty and staff as well as for the physcial education

faculty. Ideally, the two should be separate but they may be combined for economic reasons. Physical education faculty should have permanent individual dressing lockers. The extent to which this is possible for the general faculty is often limited. However, consideration should be given to providing individual half-lockers for those who need to store personal squash or tennis racquets. The faculty dressing room should have its own shower and toilet facilities.

The women's faculty dressing room should contain a full-length mirror and a vanity area complete with mirrors and small individual drawers for the personal use of the staff. Hair dryers should be easily accessible.

A telephone is necessary for both men and women faculty members. Whether it is located within the dressing rooms or in an adjacent area manned by full-time attendants ought to be determined by the installation's usefulness in emergencies.

Physical Education Majors' Dressing Rooms

Colleges and universities which offer professional programs in physical education should provide dressing rooms for student majors. It is desirable that each have an individual full-length dressing locker to accommodate the various items of clothing needed. The minimum size recommended is (in inches) 15 by 15 by 60.

CHAPTER 3 SHOWER ROOMS

Location and General Features

Shower rooms should be directly accessible from the dressing rooms they serve and from the swimming pool deck. It is desirable to concentrate, in a given area, as much of the shower, lavatory, and toilet facilities as is practical for the proposed usage of the building. Economics of installation and operation are affected by the amount of plumbing needed and the length of hot water routes. Toweling areas and shower rooms must be adjacent to one another. In men's large shower rooms, it is desirable to have a few convenient urinals in addition to those in the main toilet and lavatory area. Toilet facilities need to be convenient to shower rooms.

Toweling Areas

Toweling areas should be located between the dressing room and the showers. Towel bars or a towel issue window should be located so that towels are available immediately as the user enters the toweling area from the shower. The toweling area should be adequate for anticipated peak loads.

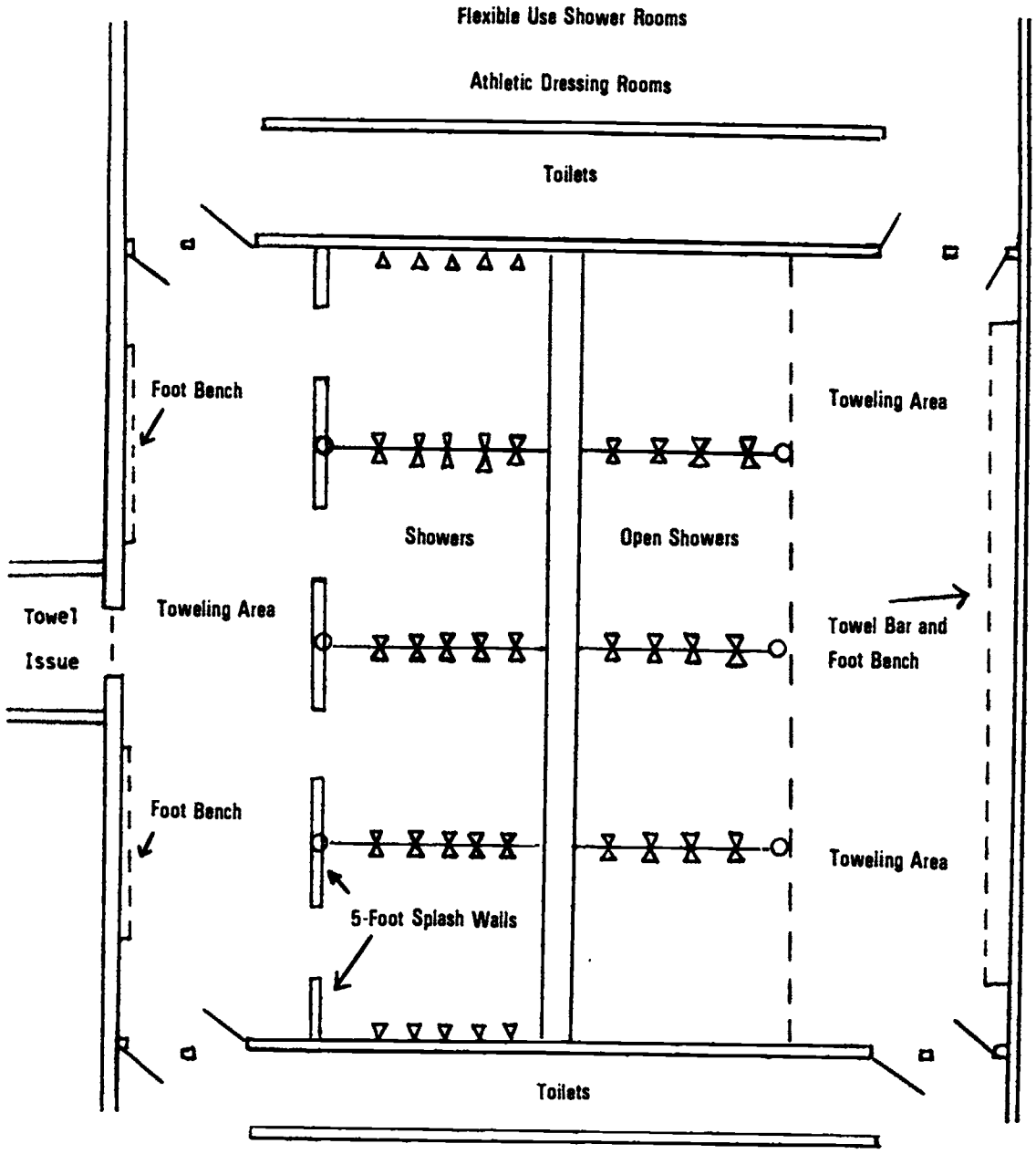
Noncorrosive towel bars should be firmly attached to the toweling room walls at a height of four feet from the floor. In some instances it may be desirable to install the towel bars within the shower area. These bars should be located above the splash zone. Towel hooks are less desirable than bars, and should be used only when other means are not possible. An effective method of providing towel hangers is to string stainless steel airplane cable the length of the shower room or drying area. This is particularly adaptable to a shower room with considerable length and with shower heads on the walls. (See Figure 2 for illustration.) Polyethelene cord is an economical substitute for the stainless steel cable, but it is less satisfactory because of stretch and more difficult cleaning. When shower heads radiate from a central pipe column, a circular platform or towel rail may be placed above the showers. Towel hooks between shower heads may be used when the toweling area has little or no wall space.

One or more foot-drying ledges should be available in the drying area. Ledges should be approximately 18 inches high and 8 to 12 inches wide. They should be an extension of the wall material, coved at wall and floor junctures, with a rounded outer edge. In open toweling areas, ledges should be 12 inches wide with both edges and all corners rounded. They can take the form of a bench covered with tile or glazed block and located so that they do not obstruct traffic or present a safety hazard.

Floors and Drainage

Shower and toweling room floors should be nonskid ceramic tile, or equivalent material impervious to water and odors. Floors of each should be sloped toward adequate drains. Low curbs should be used when necessary to confine the water, but curbing should be eliminated whenever possible, for it presents a safety hazard and adds to cost. All floor junctures with walls or curbs should be coved.

The most desirable drainage system for shower rooms consists of tiled gutters directly beneath the shower heads which lead to appropriately spaced drains covered with a removable grating of nonferrous metal. This system takes a number of forms depending upon the size of the area and the arrangement of the shower heads. Hose bibs for cleaning the area should be located conveniently near,



Dressing Room for Physical Education Classes and Visitors

Figure 2.

but outside the shower and drying rooms. A preferred location for hose bibs is beneath the lavatories.

Walls and Ceilings

Walls of shower and toweling rooms should consist of smooth, impervious, easily cleaned material. Ceramic tile or terrazzo wainscot should extend at least seven feet above the floor in toweling areas. Epoxy enamels should be considered for wall finish above the wainscot. Builders should consider the use of glazed building blocks for the walls of these areas. Glazed block construction provides a floor-to-ceiling surface similar to tile and less expensive to install. It may be used in nonbearing walls only. Glazed block is well suited for low splash walls or stall dividers.

Ceilings of shower rooms should be at least nine feet high and must be moisture resistant. Acoustical qualities are desirable.

Ventilation and Lighting

Adequate ventilation and humidity control are essential. Shower room air must be exhausted 100 percent to the outside. If it is not feasible to locate shower rooms next to an outside wall, special pains must be taken to eliminate condensation problems in the more extensive exhaust system required.

Light fixtures should be vapor-proof and flush with the ceiling. Light switches should be located in the central panel some distance from the shower area. No switches should be located in the wet areas.

Shower Installations

The type of shower head arrangement best suited to a given situation should be installed. The size and general dimensions of the shower and drying areas will affect the arrangement. A substantially enclosed shower room or splash barriers in the shower area will allow maximum usage of the space available. There are many advantages to open areas, however, which should be considered if space is available. (Figure 3 shows sketches of a number of typical shower arrangements.)

Enough shower heads should be installed to handle peak loads at a ratio of one shower to four students. In calculating peak loads for women's showers, allowance should be made for nonuse during the menstrual cycle.

The shower head itself is the most important part of the installation. It should be selected carefully with regard to ease and economy of maintenance as well as its ability to provide a satisfactory spray. Individually regulated showers are recommended with a single handle control which regulates water temperature. In addition, there should be a master temperature control which keeps all water temperature within safe limits. Automatic timed shut-off controls are a good investment if showers are used a great deal by individuals and small groups at irregular times. Should the user fail to turn off his shower, it automatically shuts off at the end of the designated time. If, however, the showers are used only by supervised groups or classes, automatic shut-off controls

are of questionable value. They constitute an additional item of cost and require periodic maintenance.

Showers should be equipped with a gravity-feed liquid soap system with convenient outlets fed from a central supply tank. All parts of this sytem must be noncorrosive. The tank should be located so that custodians can service it without getting wet in the showers. Unless the use of liquid soap is mandatory, it is desirable to have recessed soap dishes of porcelain or noncorrosive metal in addition to the liquid soap system.

Shower Head Arrangement

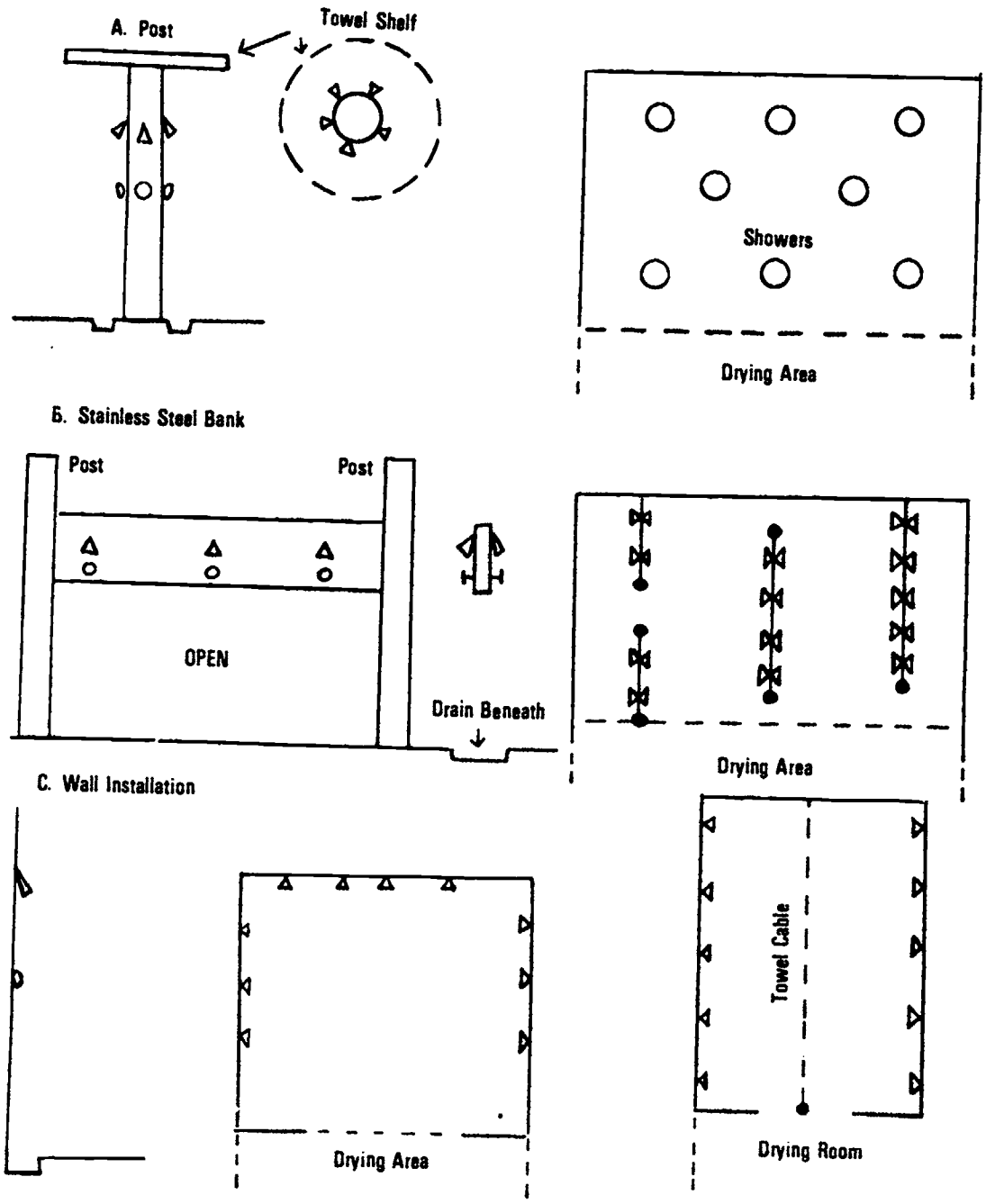


Figure 3.

Shower heads should be installed so that water is directed at an angle from shoulder height. Consideration should be given to installing shower heads at various heights to provide for individual preferences. This is particularly important in junior and senior high schools and in elementary schools where the facilities are used by adults evenings or weekends. Shower heads should be self-cleaning, nonclogging, and adjustable as to fineness of spray, but not as to direction of spray. Shower heads and related fixtures should be as compact and close to the wall as possible to reduce leverage and prevent damage from tampering. Spacing between shower heads should be 2½ to 3 feet for high schools, and 3 to 3½ feet for colleges. Plumbing should be contained in pipe spaces for convenient repair and maintance. Self-contained stainless steel banks or circular post-mounted showers are ideal in this respect. If post showers are used, provide only four outlets to prevent crowding.

At least two of the women's shower heads should be in individual shower booths adjacent to the toweling area. Dividers are recommended to form additional semiprivate compartments. Group showers for women are well accepted, but local conditions determine the best arrangement.

Showers for Physically Handicapped

Specially designed stall showers are considered most desirable for disabled or aged persons. However, special equipment for the handicapped individual can be installed as part of a gang shower. Detailed specifications for shower and toilet facilitues for the handicapped are found in Appendix G of *College and University Facilities Guide*, 1968, pp 160-164.

CHAPTER 4 TOILET AND LAVATORY FACILITIES

Toilet and lavatory facilities should be distributed throughout a building according to the intended uses of the various areas. These costly installations should be concentrated in as few places as possible. They should be located near shower, toweling, and locker areas. Direct access to toilet rooms from outside activity areas should be provided. Toilets for public use should be located conveniently for sports spectators as well as for routine users of the building. (See Figure 4 for a sketch of a flexible, student-public toilet arrangement which allows for maximum economy and efficiency of operation.)

Floors should be impervious to moisture and odors. Ceramic tile is ideal, but hardened concrete is also satisfactory and costs less. Urinals should be wall hung, and water closet stalls should be hung from the walls and ceiling to clear floors for easy cleaning. It is recommended that mirrors not be placed above hand lavatories in general toilet areas. However, at least one mirror should be located above a lavatory in coaches, faculty, and officials dressing areas for use in shaving. An outlet for electric razors should be provided adjacent to a mirror in a dry area of the dressing or toilet areas.

Electric hand dryers or paper towel dispensers should be conveniently located. Paper towels require waste disposal cans but are somewhat faster than the electric air dryers. Women's toilet areas should provide sanitary dispensers and disposers.

Outside doors should be baffled to obstruct sight lines and should close automatically. Ventilation and lighting should be equal to that of the locker and toweling areas.

Recommended standards for the number of water closets, urinals, and hand lavatories required are outlined in the *College and University Facilities Guide* as follows:

> In the men's central locker-room area, there should be a minimum of two water closets, two urinals, and two hand lavatories for the first 30 students. Additional fixtures should be provided as follows: one urinal for every 20 students, one lavatory for every 20 students, and one water closet for every 30 students. In the women's central locker room area, there should be a minimum of four water closets and two hand lavatories for the first 30 students. Additional fixtures should

be provided as follows: one water closet for every 15 students and one lavatory for every 20 students[1].

The above standards refer to the number of facility users at expected peak loads.

In many localities women refuse to make use of female urinals. Should local conditions indicate that these are desirable, it is recommended that a third to a half of the water closets listed in the above standards be changed to female urinals.

Flexible Use of Toilet Rooms

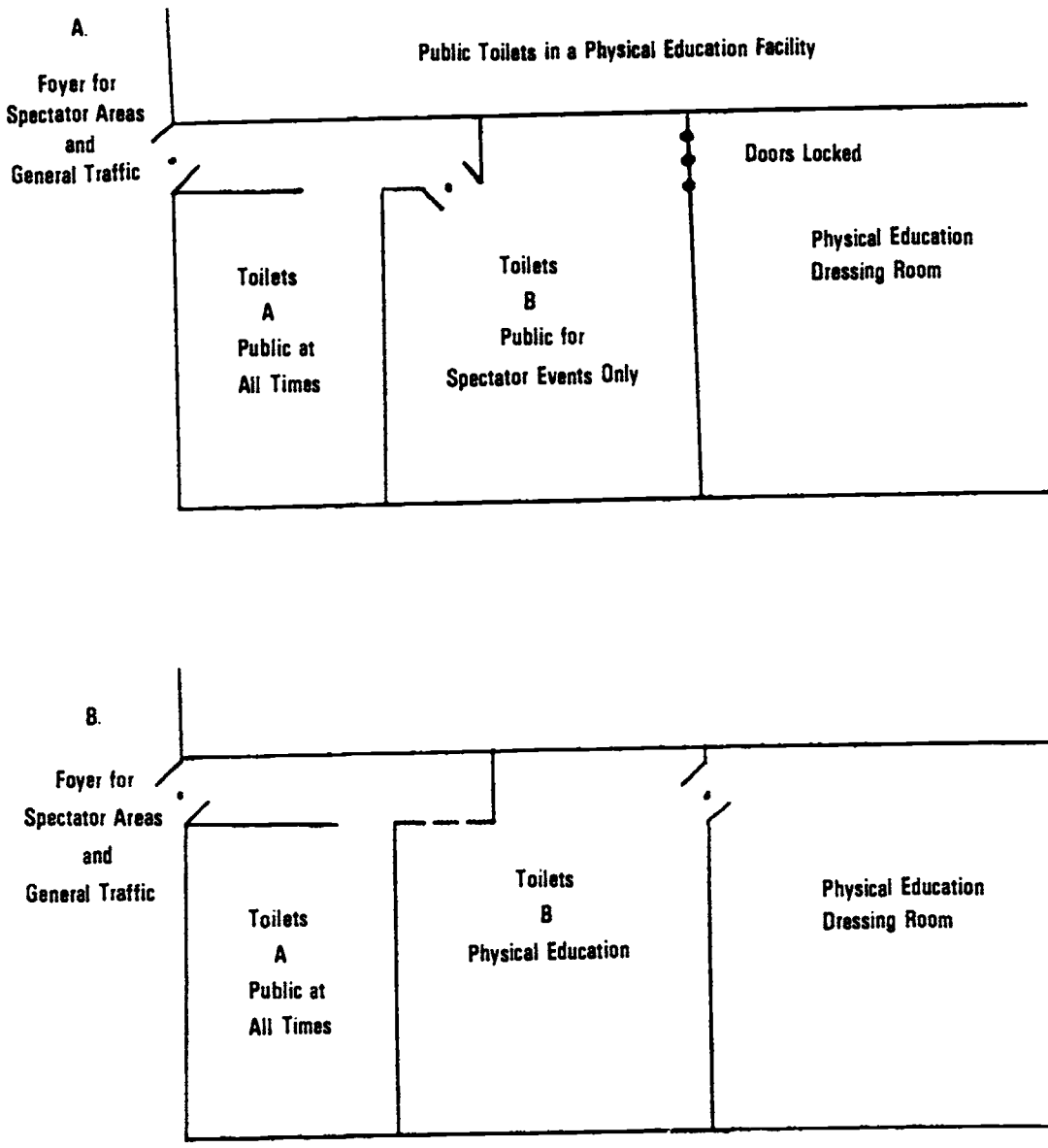


Figure 4.

[1]The Athletic Institute. *College and University Facilities Guide for Health, Physical Education, Recreation, and Athletics, By Participants in the Fourth National Facilities Conference* (Chicago: the Institute, 1968), p. 70.

CHAPTER 5 LOCKER SYSTEMS

A good locker and clothing system should provide:

1. Security
2. Adequate ventilation
3. Sufficient space for clothing
4. Ease of operation and supervision
5. Flexibility of use
6. Durability and freedom from maintenance problems
7. An attractive appearance

Selection of Appropriate System

The selection of the best locker system for a particular building includes the choice of dressing lockers, clothing storage units, and their physical arrangement and location. The ultimate decision should be determined by the following considerations:

1. *Unique requirements of the individuals using the locker system.* Athletic teams, physical education classes, faculty, coaches, and student majors should be provided facilities which meet their special needs.
2. *The size of the program.* A very small school conceivably could provide each student with a personal locker for clothing storage and dressing, whereas a larger school would need to provide extensive clothing storage units apart from the dressing locker. The small school might effectively use one set of lockers for both physical education and athletics, while large institutions would require separate specialized facilities.

Enough lockers must be provided to allow for peak class loads plus overlapping use between classes. Storage baskets or ventilated compartments should be sufficient to serve all persons in the program. Intramural, recreation, and athletic needs should be met. It is not necessary to have lockers installed for expected future enrollment increases, but it is wise to provide space for additional lockers in the original building plans so that they may be installed as needed.

3. *The manner in which the program is intended to function.* Does the school or the individual provide the gym suit? Does the laundry service provide for all clothing, or towels only? Does the school have its own laundry service? Is the facility open for individual use at odd hours, or is the entire program strictly scheduled for classes and supervised groups? Does the school have regularly employed store clerks, or must clothing and towel issue be handled by students?

4. *Financial limitations.* These determine space, service personnel, maintenance, and funds available for the initial installation. True economy is achieved only when the installation is functional, durable, and adaptable to unforseen program modifications.

The types of locker arrangements in the following discussion are not comprehensive, but are ones which have been found useful in various situations.

Individual Dressing Locker

Individual dressing and storage lockers are the ideal system in every respect but economy. Consequently, they are usually provided only for those who really need them. These include faculty, student majors, sports officials, athletes, and coaches. The lockers should be well ventilated and big enough to meet all needs. Athletic lockers should be of expanded metal mesh or perforated metal for maximum ventilation. Use of the athletic lockers by different teams during various seasons requires that the lockers be adequate for the largest amount of gear used during the year. Normally this would be football equipment.

A bar for coat hangers and a shelf for books should be provided in all lockers. Consideration should be given to a low shelf for extra shoes for athletes, coaches, physical education faculty, and student majors. When expanded steel mesh is used in a locker, a solid metal security box should be considered for the storage of valuables during practice and games. A wide range of locker sizes and special features may be obtained from the manufacturers.

Dressing Locker and Box Storage Lockers

This system eliminates the tote basket which is a cost item and is subject to loss or damage. It is most effective when the box lockers are adjacent to, or very near, the dressing lockers. Effective use requires the transfer of *all* items from the storage locker to the dressing locker when dressing, as one padlock must serve both lockers. The use of combination locks installed in the locker doors is not recommended.

Box storage lockers are available in a variety of sizes to meet different needs. When expense is no object, a storage locker of 24 inches high is compatible with dressing lockers 48 and 72 inches high or double tiered 36-inch lockers. However, a storage locker of this height occupies two to three times the space of 12- or 9-inch lockers and much of the vertical space is wasted. The smaller lockers should be used when economy of space is imperative. Probably the most efficient storage locker in terms of space and ventilation is one 18 to 24 inches wide and 8 to 9 inches high. These are compatible with the 12- to 18-inch-wide dressing lockers when arranged in combination. Shelf space is more important than height in a storage locker, while height is more important than width in the dressing locker. Expanded metal mesh affords the best ventilation but is not as secure as a front-louvred box. Stamped perforations in the doors, sides, and backs provide good ventilation

and more security than expanded metal. Each dressing locker requires a number of storage lockers equal to the number of students in planned activity periods. The ratio is usually six or seven storage lockers to one dressing locker.

Arrangement of Dressing and Storage Lockers

The physical location and relationship of dressing lockers and box storage lockers takes a number of common forms with corresponding advantages and disadvantages.

1. *Dressing locker with adjacent storage lockers.* This combination is well adapted to programs which do not provide a daily change of clothing. The storage lockers are convenient to the dressing locker, and the class may be evenly distributed throughout the room by assigning a different level of storage lockers for each period of the day. A column of storage lockers adjacent to the dressing locker also provides additional width for dressing bench space. This is an important consideration when dressing rooms are crowded with people or when lockers are narrow.

2. *Storage lockers separated from dressing lockers.* Such an arrangement is very effective when soiled clothing is exchanged for clean clothing daily or after each use. A natural traffic flow is assured by locating the clothing issue windows between the storage lockers and the dressing locker area. If damp clothing is to be kept in the storage lockers it is an advantage to be able to isolate the storage area for special heating and ventilation.

3. *Post office locker system serviced from the rear by attendants.* If clothing is exchanged after each use, this system can prevent crowding at the issue windows. Attendants can work at a steady pace, and students are not delayed at the issue windows. However, attendants must do more walking and a great deal of wall space or "between rack" space is required for servicing from the back of the storage lockers. This system requires that clothing be owned by the school, and that regular service personnel be available.

Dressing Locker and Tote Basket Systems

The arrangement of storage baskets and dressing lockers follows the same pattern described above for box storage lockers. The greatest disadvantage of the tote basket is that it constitutes an extra piece of moveable equipment and is subject to loss and misplacement. There is little justification for using storage baskets instead of storage lockers adjacent to dressing lockers. However, when clothing and personal items must be carried some distance from the storage area to the dressing locker, baskets are useful. Well-constructed storage baskets are stronger than expanded metal mesh and provide better ventilation than perforated metal in storage lockers.

CHAPTER 6 LOCKERS

General Recommendations

The best source of information on the selection and purchase of lockers is the promotional material put out by locker manufacturers. These booklets, combined with readily available manufacturers' specifications, provide a sound beginning for the prospective locker buyer.

Lockers come in many styles and sizes. However, each manufacturer produces standard sizes, colors, and extra accessories. Avoid ordering nonstandard sizes, colors, and extras, for the costs are prohibitive and deliveries, uncertain. Insist upon a sample locker and a set of complete specifications before making a decision to buy.

Physical Education Lockers

Front-louvred dressing lockers are satisfactory unless damp gym uniforms are to be stored in them, in which case perforated metal is recommended. The solid front locker with louvres provides greater security and less temptation to pilferers. Box lockers for clothing storage should be of expanded or perforated steel, with all doors and exposed sides of perforated 14-gauge steel.

Women generally require a taller locker than men. Double tier 36-inch lockers are satisfactory for men, but women require 60- or 72-inch lockers for their clothing. Student majors, faculty, coaches, and game officials should have 72-inch lockers.

Minimum width for dressing lockers should be 12 inches and minimum depth 15 inches. Lockers of this size can be combined with adjacent columns of box lockers or tote baskets to provide lateral dressing space. Dressing lockers arranged in solid banks need to be 15 to 18 inches wide if mass use is anticipated. Box lockers usually conform in width and depth to the adjacent dressing lockers. Consideration should be given to box lockers 18 to 24 inches wide and only 8 or 9 inches high. Shoes and clothing items fit better into this opening than into a narrower but higher opening of the same total area.

Sloped locker tops are desirable in most cases to prevent an accumulation of dirt and sundry objects. However, lockers low enough to allow visibility over the tops are easily inspected and cleaned. For these, flat tops may be desired as a convenient bookshelf while opening the padlock. Brightly colored lockers add warmth and life to a dressing room.

Forced-air ventilation through storage baskets or lockers is desirable. The use of the entire room as a drying unit by the installa-

tion of automatic timed temperature and variable air movement controls is recommmended in lieu of special installations related only to the storage units.

Athletic Dressing Lockers

Special drying rooms for athletic equipment present administrative and security problems. The high temperatures normally used in quick-drying are damaging to many items of equipment. Drying rooms are not recommended for routine drying and storage of athletic uniforms and equipment.

Athletic lockers should be open-mesh expanded or perforated metal. By the use of such lockers and automatic timed thermostatic controls for temperature and air movement, the entire dressing room can be utilized for the drying of equipment without sacrificing the security and student accountability of the individual locker system.

Athletic dressing lockers should be 60 to 72 inches high. Lockers 36 inches high are tall enough for basketball, track, and tennis equipment, but are too short for the street clothing which must be accommodated. The athlete may not have access to his regular school locker after practice, so the athletic locker needs to be roomy enough for his belongings.

The minimum width and depth of athletics lockers should be 15 inches. Lockers for football and similar bulky equipment should be not less than 18 inches wide and 18 inches deep.

The lockers should contain shelves or compartments for books and extra shoes. A solid steel compartment within the locker for valuables is a wise investment.

Combination locks with a master key may be installed in the locker doors with security, but padlocks are less expensive and eliminate the need to change combinations on the permanent locks each new season.

Materials

Lockers are subject to hard use and require a heavy gauge metal for long life. Standard gauges for sheet steel run from 24-gauge at .0239 inches thick to 11-gauge at .1196 inches thick. The best practice is to compare actual locker samples, since the gauges of steel are meaningless to most people except in a very general way. Locker doors are of heavier steel than the sides and backs. The exposed ends of locker banks should be of heavier than normal gauge.

Joining Methods and Forming

Lockers can be shipped to the site in pieces and assembled with bolts or rivets. The only advantage to this method of assembly is a saving on shipping costs and the price of the lockers. The recommended procedure is to have the lockers assembled at the factory by electric arc welding and shipped to the destination ready to be set in place. Costly maintenance problems are reduced and the properly assembled locker is less expensive in the long run.

Attention should be given to the formation of the component parts of the lockers. Additional strength and durability is attained by proper flanging, channeling, and ribbing of the parts. Manufacturers' specifications are usually specific in this regard.

Finishes

Finishing can refer to either of two processes: actual finishing of the steel plate at the mill, or the coating and painting of the locker parts at the factory.

Cold-rolled steel has a smooth surface which, nevertheless, takes enamels well. Hot-rolled steel is covered with a film of scale which must be removed by a chemical bath or "pickling" to insure good paint adherence. Galvanized sheets are used for some locker parts, particularly the bottoms, to inhibit rusting.

Locker manufacturers normally perform three finishing operations:

1. Chemical cleaning to remove grease or dirt.
2. Application of a prime coating. This is baked at a specified temperature.
3. Application of an enamel finish coat. Electrostatic methods insure an even spreading of the enamel which is then baked. (The thickness of the finish coat is generally specified in mils.)

Latching and Hinges

Lockers should have three-point latching at the center, top, and bottom. The latching rod should be of solid steel at least ⅜-inch in diameter with guides at the top and bottom of the door.

Doors of lockers longer than 36 inches should have three hinges welded to both door and locker frames. Those 36 inches and under should have two such hinges. Hinges should be fast pin, heavy duty, and made of 15-gauge steel.

Rubber-silenced door stops should be provided for quiet operation and to prevent the doors from being forced into the locker opening and damaged. Padlock strikes on door handles prevent padlocks from wearing away the locker enamel.

Locker Numbering

Numbers for dressing lockers, box lockers, and tote basket openings should be carefully specified. A diagram of the locker arrangement with accompanying numbers must be given to the manufacturer. When box lockers or baskets are intended to be used with specific dressing lockers, the numbers should be related in some meaningful manner. For example, the box lockers adjacent to locker number 6 could be numbered from top to bottom as follows: 6-1, 6-2, 6-3, 6-4, 6-5, and 6-6.

Storage Baskets

Tote baskets are available which are strong, durable, and pilferproof. Their ventilation is superior to box lockers, although expanded metal lockers are very good in this respect. The features of a good tote basket are:

1. Heavy wire of ¼-inch mesh or less.
2. A solid or blind facing to prevent pilfering.
3. A closely fitted locking flange.
4. Noncorrosive finish with all joints solidly welded.

The larger baskets are preferred. These are approximately 12 inches by 8¾ inches by 14 inches. The baskets with sides perpendicular to the bottom hold more clothing but require a handle on the front. These sometimes give trouble, and only a sturdy handle should be accepted. Baskets with sloping sides waste storage space to some extent, but they require no handle for pulling them out of the rack and improve ventilation.

The perforated plastic boxes on the market may be practical for clothing storage. They are noncorrosive but have no history of use upon which to make valid comparisons as of 1971. Several manufacturers are coating wire baskets with vinyl. The extent to which the bottom covering will resist continuous wear is in question, although the wear on the enamel of the basket rack should be reduced. One basket on the market has a raised bottom section which allows air to flow freely underneath the contents.

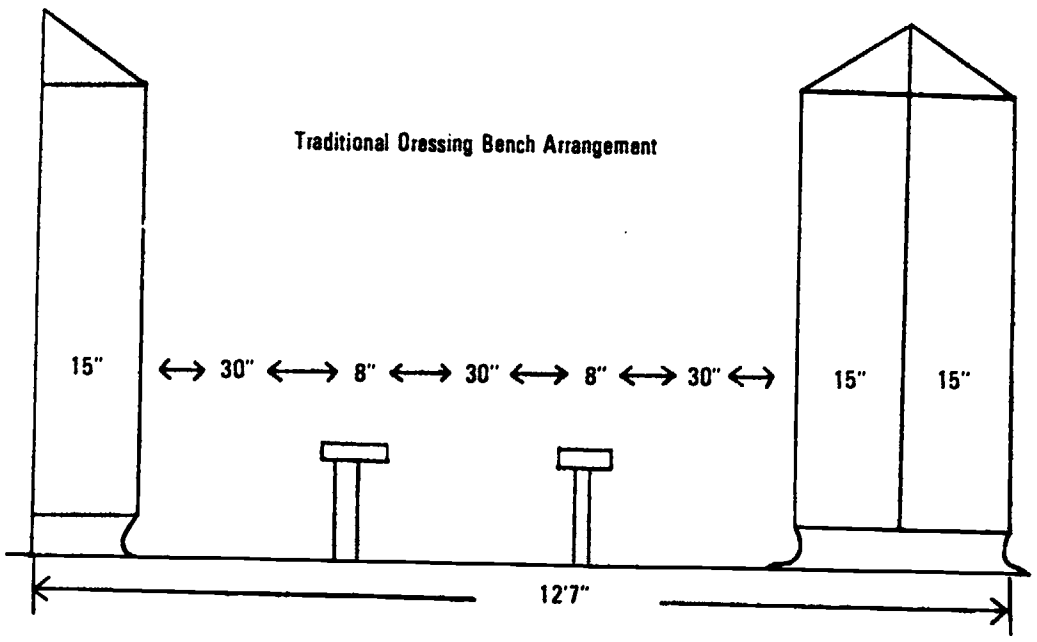
Locker Bases and Dressing Benches

The most practical dressing bench is a concrete slab mounted on a solid pedestal of concrete block with the dressing lockers installed upon it. This installation provides unobstructed aisles which are safe, convenient to clean, and provide easy traffic flow. More floor space is saved with this type of installation than with the standard dressing bench arrangement. (See Figure 5.) Men have no trouble using 72-inch lockers mounted on the pedestal. Women can also use the full-height locker, but a 60-inch locker is recommended for greater convenience.

Whenever traditional dressing benches are selected, consideration should be given to plastic or fiberglass finish. The juncture of the bench supports with the floor must be watertight and smooth.

Dressing rooms without benches do not seem to cause difficulties or problems to students. Adults prefer, and often need, benches of some kind to aid in dressing. The extent of adult use of the dressing quarters should be considered when making a decision to eliminate dressing benches.

Dressing Bench Arrangements



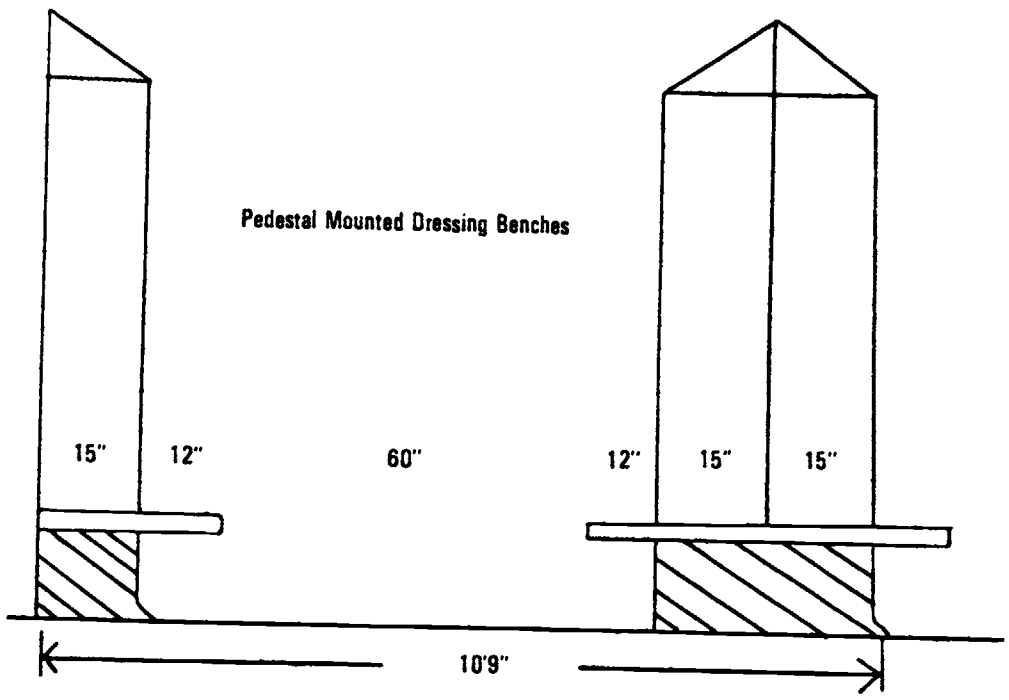


Figure 5.

CHAPTER 7 LAUNDRY FACILITIES

Program Objectives and Needs

Modern laundry facilities in physical education buildings should benefit students participating in physical education, recreation, and athletic programs. A sanitary and healthful environment should minimize illness and infection. Closely associated with a healthful environment are the aesthetics of improved appearances, cleanliness, and lack of odor. Economy to the individual student and administrative unit is an important consideration. There should be less inventory and a smaller investment for supply items. Fewer losses will result in lower costs and the extended life of launderable items should cut total costs.

Each institution will need to make its own decisions as to the installation of laundry facilities. The community may have highly competitive commercial laundries, or the college or university may have a general laundry. The operation of a laundry can also become a frustrating and time-consuming task, especially with minimal equipment, personnel, and funds. It may also appear that adopting the policy of "individual responsibility for furnishing his/her own personal gear" is the solution. However, those with experience know that many of the above mentioned benefits of a laundry may be completely nullified if students must furnish their own personal gear. Since, in practically all instances, students participating in intercollegiate athletics are furnished gear, a total laundry program for all students should be carefully considered.

Cost Analysis

An estimate or cost analysis study should assist in revealing the feasibility of laundry facilities. Oversimplification of the entire operation is not sound. Proper planning for any facility should include a realistic awareness of the total process. Careful study of existing laundry operations and their costs should be beneficial. There are several categories that should be considered:

Personnel

Number of laundry men, women, and student assistants -	Wages
Percentage of supervisory personnel's time -	Percent of salary
Amount of vacation time, sick leave, holidays -	Wages
Payroll assessments such as social security, insurance, retirement, administrative overhead -	Cost

Equipment

Initial outlay for equipment - Cost
Depreciation and amortization - Cost
Equipment maintenance - Cost
Contingency for commercial laundry (breakdowns) - Cost

Building Maintenance and Utilization

Regular institutional assessment - Cost

Auxiliary Services

Water (cold, hot, usage rates) - Cost
Water softeners (if needed) - Cost
Steam - Cost
Electricity - Cost
Gas (if used) - Cost
Heat - Cost
Sewage - Cost

Supplies

Soap, bleach, soap supplements - Cost

Delivery

Transportation between buildings - Cost

Much of the cost analysis is dependent upon the type of clothing furnished, policies for use, amount of folding, and whether ironing and/or pressing will be necessary. Many of the new synthetics do not require ironing or pressing and save a tremendous amount of time. Estimates of clothing into pounds per day, per week, and per year can be translated into type and size of equipment, work loads, supply needs, and other costs. Responsible representatives from reputable laundry firms or experienced administrators who have laundry operations are excellent resource people. Comparisons of these approximated costs with commercial laundry prices along with other considerations should form the basis for an intelligent decision.

General Guidelines to Planning

Space relationships, such as the location of the laundry and other closely related factors, need careful analysis. The laundry should be easily accessible to the central storeroom and the issue supply rooms. Traffic patterns within the building, between floors (if issue rooms are on different levels), and between buildings should allow for ease in movement of supplies. A service roadway and entrance should be provided. Ramps, rather than stairways and elevators, or small electric lifts of laundry-cart size are advantageous. Sometimes, in planning accessibility and efficient traffic patterns, security is sacrificed. Security should be built into the system.

The essential and specific auxiliary services (water, steam, sewers, and electricity) should be planned in new construction or should be easily accessible without excessive costs in renovation construction. The size of sewers is quite often inadequate to handle the increased water flow.

Sound and vibration controls are critical. The revolutions per minute (rpm) of washer-extractors (washers with a spin cycle) or separate extractors can literally shake and rattle portions of the building. Tolerance level specifications for the equipment bases should be carefully prepared and followed. The selection of equipment should precede the layout of laundry rooms, floors, and the placement of auxiliary services. The placement of equipment should facilitate the flow and handling of launderable items with a minimum of wasted steps and effort. The wet weight of laundry is approximately 3¾ times the dry weight and the weight after extraction is approximately 1½ times the dry weight so that the handling of laundry becomes an energy-expending job. Also, room should be provided for the servicing of machinery.

LAUNDRY ROOM CONSTRUCTION

Size and General Layout

The dimensions and general layout of the laundry room should be planned for the amount and kind of equipment needed to handle the volume of laundry. The volume of work varies widely with the number and sex of students, the extent of participation in the programs, the amount and type of personal equipment provided, and the policies relating to the usage and exchange system. If there is no available information as to the quantity of launderable items, the work load should be established by estimating the count and weight of items (figures used are approximate; items should be weighed.)

Item (Selected)	Weight Per Item	No. of Items Per Year	Total Weight
Bath towels	.75 lb.	190,000	142,500
Supporters	.25	50,000	12,500
Gym/T-Shirt	.33	45,000	14,850
Blouses	.25	18,000	4,500
Shorts	.50	48,000	24,000
Sweat Shirts	1.00	25,000	25,000
Sweat Pants	1.00	6,800	6,800
Leotards	.25	4,000	1,000
Socks	.15	250,000	37,500
Swim Suits	.50	50,000	25,000
Baseball uniforms	3.00	1,500	4,500
Football shirt	3.00	2,100	6,300
		690,400	304,450 lbs.

Washer or washer-extractor, dryer, and extractor capacities can then be calculated to determine the size and number of machines. Reputable laundry manufacturers and school laundry managers are excellent sources for advise about equipment, room size, and general layout. Specifications and dimensions of washer-extractors, dryers, sinks, ironers, folding tables, storage shelves and bins, laundry basket/trucks, and work space should all be considered in the design of the room (See Figures 6 and 7).

Walls and Doors

Walls should be sound-proofed and impervious to moisture. Any necessary openings, such as ventilation outlets or fan spaces, should be planned in the construction phase. If windows are used, the problems of glare, wind, rain, and security should be taken into consideration in the planning stages. The doorways leading to the main service entrance should be wide and high enough to allow the passage of equipment. Bumper guards on lockable swinging doors should permit greater ease in moving laundry baskets or trucks in and out.

Laundry Room Layout

Oregon State University Division of Health and Physical Education Laundry
Scale: ¼ in. = 1 ft.

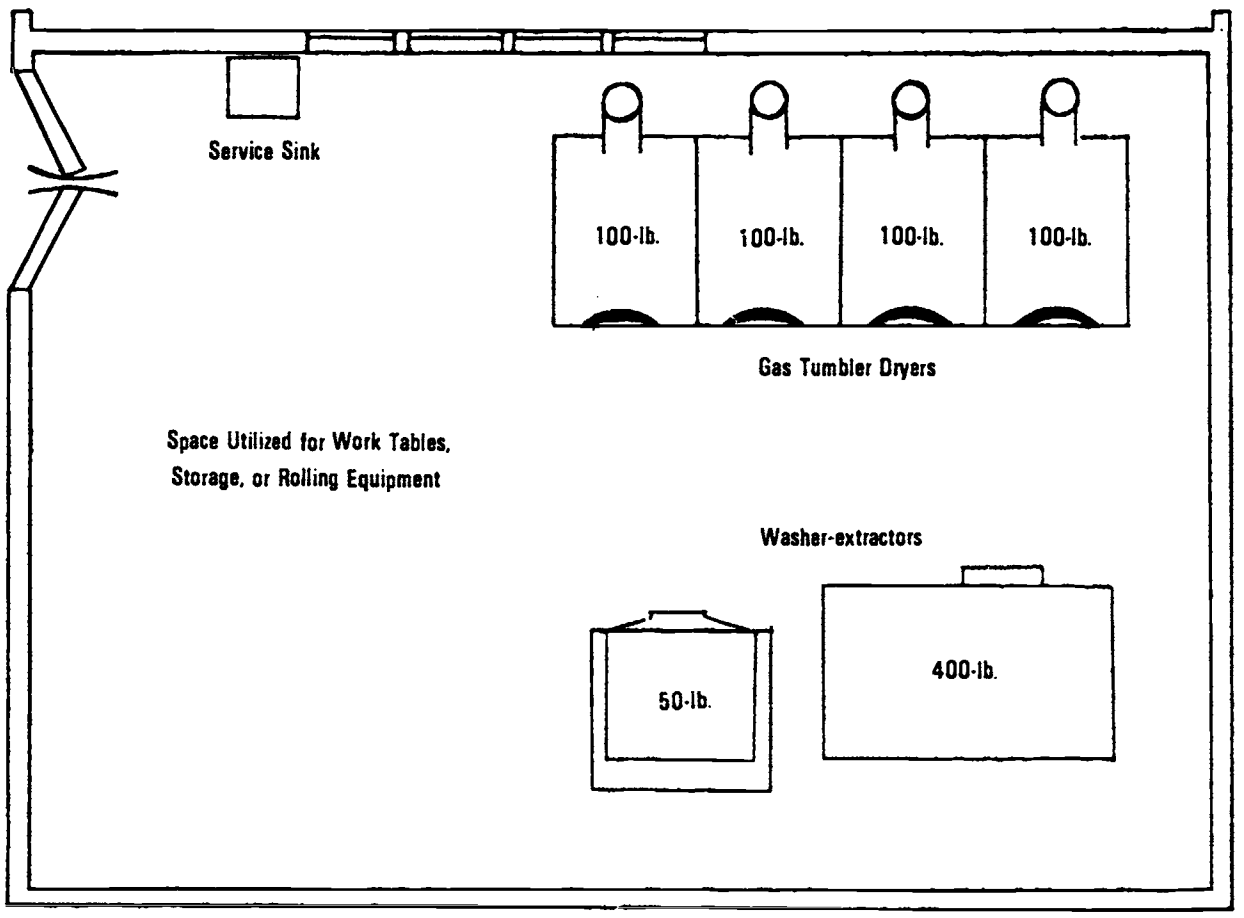


Figure 6.

Ceilings

Ceilings should be impervious to moisture and substantial enough to hold pulleys, if needed. Acoustical controls should be considered when selecting the type and construction of the ceiling and superstructure.

Floors

The floors should be moisture-proof and constructed to withstand heavy wear. An abrasive or nonskid finish is essential. Detergents and other chemicals should not damage the floors. They should be erance level to prevent puddles. The bases for the washer-extractors and dryer tumblers should meet the manufacturers' specifications for each specific machine with as near a perfect tolerance level as possible. (For example, one type of washer-extractor requires 10 cubic yards of concrete for the base.) Door thresholds and drain covers should not interfere with the moving of rolling equipment. A ramp installation should aid in the moving of trucks and baskets from different levels.

pitched to drain to the outside of the room with a restrictive tol-

Laundry Room Layout

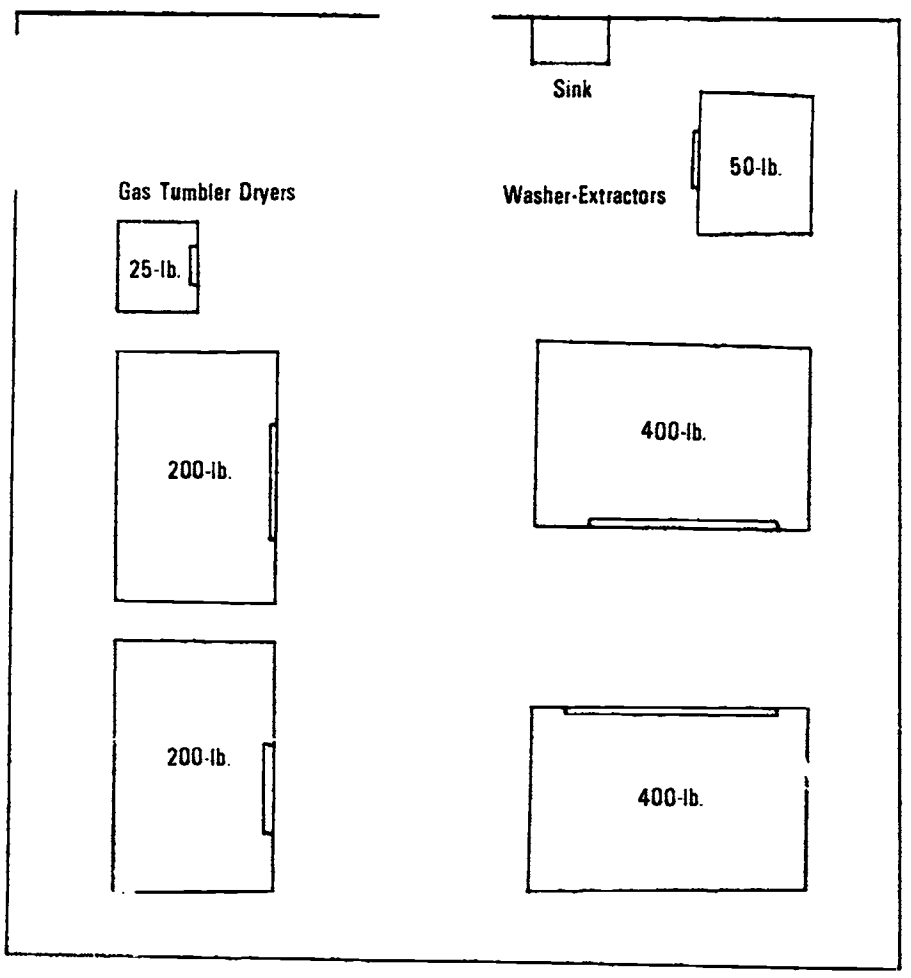


Figure 7.

Storage, Shelves, and Work Areas

Storage space for laundry supplies and launderable items should be planned for security and efficiency. Shelves, drawers, and/or bins sized according to items to be stored are space savers unless the movable baskets/trucks are used exclusively to move the launderable items from and to the issue rooms. Work tables for folding are generally movable and placed strategically to decrease handling and transportation.

Plumbing

Hot and cold water and steam should be available in sufficient quantities and temperatures to handle all work loads. Some 2½ to 3½ gallons of water are necessary for every pound of clothing. For example, one type of 400-pound washer-extractor has a water capacity at high rinse that can total 175 gallons of water. Most bacteria can live in hot water below 160 degrees F while the new synthetics should not be washed in water hotter than 100 degrees F. If the temperature of water goes too high, the tensile strength of linens may be damaged. These requirements necessitate automatic controls governing the temperature as well as the quantity of water. The washers should be programmed for each type of fabric washed. The diameter of the pipes for hot and cold water and steam must meet the manufacturers' specifications. This means new plumbing in most renovation construction. The steam consumption of 10 pounds per minute (as in a 400-pound washer-extractor) conditions the launderable items by increasing the load temperature and decreasing the moisture retention. The pipelines should be noncorrosive and should resist the accumulation of chemical deposits which decrease the flow of water.

The washing, rinsing, and extracting cycles require that large quantities of water be in ready supply for rapid inflow. The equipment should be able to handle the quantity and rapid dumping of wash and rinse waters in order to prevent overflow. If an open trench is used, protective strainers and covers should be added to prevent stoppage or clogging of the sewerage system.

Electrical

The wire size, voltage, motors, and electrical work should meet all standard requirements. The manufacturer's agent and physical plant engineer should work closely together to see that the lines are not overloaded. In addition to the 220-volt lines, there should be 115-volt outlets placed in strategic areas for the use of small appliances, such as a radio or sewing machine. In some instances, it might be more advantageous to have the sewing and repair of clothing done in the central or issue supply rooms during slack periods. Vaporproof light fixtures should be provided with approximately 50-foot-candle illumination throughout the room.

Mechanical: Heating and Ventilation

Excessive moisture, noise, and extreme heat make mechanical climate control necessary. Especially in hot weather, the operation of tumbler-dryers, washer-extractors, and presses or ironers all tend to create unsatisfactory working conditions.

EQUIPMENT

One of the first equipment decisions should involve the choice between combination washer-extractors and separate washers and extractors. Several advantages listed for the washer-extractor combination machines are: more laundry is processed as a result of less load time; fewer employees are needed; less floor space is needed; less initial capital outlay and maintenance are needed.

Each manufacturing company lists the advantages of their particular type of equipment; these should be compared point by point. Some commonly mentioned points are: soiled clothing is thoroughly washed, rinsed, extracted, and conditioned to proper moisture retention levels; machines are programmed to automatically operate through a complete cycle; stainless steel cylinders are compartmentalized and precision balanced to assure correct weight distribution plus ease in loading and unloading; carefree automatic supply injection provides a highly efficient and automatic method of adding soap, bleach, and other supplies; different methods of vibration and suspension systems are used to eliminate the need for extraheavy concrete bases, suds overflow is prevented; a trouble-free gravity drain and fast filling and draining valves are used. The service records for the maintenance of the equipment should also be carefully checked. Since washer-extractors can now decrease the moisture content after rinsing and extraction to recommended levels, it is rather difficult to spell out advantages for separate extractor machines.

Washer-Extractors

The number and size of machines will depend upon work loads and other considerations. Some prefer a variety of different washer-extractors sizes to handle the work load needs more efficiently and quickly. For example, it would take a large number of leotards which require low water temperatures, to fill a 200- or 400-pound machine. With more than one washer-extractor, a breakdown is not quite as serious, since the remaining operable machine can continue to meet at least emergency needs for clean clothing.

Tumbler Dryers

There are several decisions to be made on the type, size, and number of tumbler dryers. Work load, cost, availability of gas or steam for heat, and the practicality of one unit large as opposed to a greater number of smaller units should all be considered. There are also reversing and nonreversing models. Additional features that should be considered are: ease of loading and unloading, a lint collection system, amount and temperature of air flow for faster drying and trouble-free operation. If gas is used, a 100 percent safety pilot shutoff should be a must.

Ironers and Presses

The decision to use ironers and/or presses depends upon the types of clothing and other items to be laundered as well as assets for personnel, equipment, and other costs. As a general rule, with the advent of drip-dry and other synthetic clothing, it is hard to justify the costs for ironers and/or presses plus the cost of personnel to

operate and maintain the machines. Labor costs can really mount rapidly.

For those who have the money for equipment, personnel, and other costs, there are general purpose uniform presses designed to handle a wide variety of finishing jobs: special garment presses for uniforms and laboratory coats can handle approximately 100 to 240 garments per hour; a pants press can press approximately 60 pairs of pants per hour. Unfortunately, these machines can not operate or maintain themselves.

There are flatwork ironers available which give a high-quality finish to linens and can handle a large number of items in a limited amount of time. Some ironers can be equipped with cooling devices and folders.

There are folders and stackers which can fold as many as 1600 bath towels per hour.

Soaking and Rinsing Sinks

There are times when soaking or rinsing sinks can save time and machine maintenance, especially after muddy sports practice sessions or intercollegiate games. These vats should be stainless steel or other noncorrosive material. Mud crocks or special drains to prevent clogging should be installed.

Baskets, Hampers, and Trucks

The movement of dry and wet laundry within the building and sometimes between buildings requires movable utility baskets and/or hampers and/or trucks. Common sizes range from a 12- to 16-bushel capacity. The open top baskets may have specially treated canvas fitted over spring steel frames which are placed on hardwood runners and fitted with swivel castors or a combination of swivel and stationary castors. Fiber glass baskets, hampers, and trucks are made of strong reinforced fiber glass and are impervious to acids, alkalies, bleaches, and starches. Castors are built into the bottom for ease in movement. The fiber glass models are smooth, and prevent rust and clothing snags. The fiber glass model costs about twice as much as a comparable canvas-treated hamper/truck.

The size and dimensions of the basket, hamper, and/or truck should be selected to fit the traffic patterns, hydraulic lifts or elevators, and for ease in handling.

Laundry Operations

After the laundry structure has been built or renovated, the auxiliary services installed, and the equipment selected and put into operation, the laundry facilities need competent personnel to function efficiently.

The selection of a qualified laundry man, or the training of capable personnel, is the key to a successful operation. Laundry equipment should receive constant maintenance care. Schedules should be developed, clothing must be sorted, proper washing techniques and chemical formulas must be selected and used, and clothing must be properly folded and distributed.

CHAPTER 8 TRAINING ROOM FACILITIES

Introduction

The facility and layout must directly reflect the needs, philosophy, and objectives of the programs they will serve.

Training room facilities vary according to school size, resources, and program requirements. Flexibility is, again, a guiding principle in achieving objectives and conserving expenditures. Ideally, the training room should be functional enough to serve both athletics and other purposes, such as a first aid room for school and community functions, or a classroom resource for the training of athletic trainers. This multipurpose function reduces the number of expensive facilities, equipment, and supplies. Women's programs should be served by the training quarters, or an adequate additional training room should be provided for them.

Often, the extent of training room facilities is determined almost exclusively by available funds and space, thus the facilities vary from one institution to another. This variance is especially true in high school training rooms which are usually limited by funds, facilities, and trained personnel with adequate time released from other duties.

With these limitations in mind, the reader must realize that the facilities mentioned here can be implemented at any level, but are actually geared to the resources and programs of a large university. It is possible, however, to scale down the described facilities to fit the needs and funds of a lesser program. Lack of adequate training facilities may readily give rise to permanent injuries and law suits.

Location of Training Facilities

The training facilities should provide functional space for a doctor and trainers to serve the athletic programs and perhaps other student functions. The training room should not be part of the dressing room but should be directly accessible from it. First aid portions of the training areas may be useful to both college and community functions if located near audience seating. As a classroom laboratory, the area may be used for classes in first aid and/or athletic training. Multiservice usage reduces the need for duplicated equipment. Such coordination in the use of facilities, equipment, and supplies must be worked out according to the situation existing at each individual institution.

A central location is important for the efficiency and effectiveness of a training area. It is desirable that the location be next to the dressing quarters, whether in a gymnasium or field house. Central location makes it possible to handle all sports without moving

voluminous equipment and supplies. Smaller auxiliary rooms must be provided to handle the training program if the school's physical plant is not concentrated in one area.

If possible, training facilities should be provided for visiting teams. An area adjacent to the visting team's dressing room may well be made available for use by visiting coaches, managers, or trainers. Supplies for such an area are minimal since these items are provided by the visiting teams.

General Description

In describing training facilities, certain general statements can be made. The rooms should be light colors, cheerful, well ventilated, and temperature controlled to approximately 75 degrees. For good ventilation, an exhaust fan must be used in the training area, and especially the hydrotherapy room, to eliminate excessive moisture and offensive odors. It is advisable that all parts of the room be visible from any other part. Materials of construction should be safe, durable, attractive, and easily maintained. Floors and walls of tile are often recommended. Adequate wiring, ventilation, and lighting are also necessary.

Floors should be made of materials such as asphalt tile, or the new synthetic floor materials which are easily cleaned, water resistant, and which will not be permanently discolored by solutions used in training areas. Floor color can be light gray, tan, or green and the material of which the floors are made should not readily crack, chip, splinter, scratch, or dent.

Walls should be surfaced with a washable substance such as glazed tile or brick at the lower level, and moisture-resistant paint of a cheerful light color at the upper levels. Smooth plaster surfaces are good for the training room walls, since they are a light color and washable.

It is recommended that ceilings be of a light color (white) and preferably accoutiscal tile. Ceilings should be 10 feet high to allow standing on 30-inch training tables.

Electrical outlets must be placed in the wall about four feet above the floor. Electrical outlets to handle the increased voltage of treatment apparatus, such as ultrasound, should be plainly marked.

Adequate illumination must be provided. Florescent lighting is preferred for the close tedious work which must be completed in the training room area.

It is recommended that overhead lighting fixtures provide 40- to 60-footcandles of artificial light throughout the room. It may be necessary to provide increased lighting at certain places, such as the station where cuts and abrasions are treated.

Windows which admit daylight are unnecessary in training rooms. However, windows may be desired to aid in supervising the different training areas. Whenever a window is provided between the hydrotherapy room and other rooms, thermopane (double) safety glass should be installed.

Layout

As with the planning of other types of school facilities, a training facility should be designed to meet present and future needs. The room or rooms must have the necessary equipment arranged to allow maximum attention in minimum time.

Although there are various ways of organizing floor plans for training facilities, the material will be discussed here in terms of areas: (1) the treatment area, (2) the storage area, and (3) the office area. Each of these areas will be described with the realization that, in some cases, they all may be contained in only one or two rooms. (See Figure 8.)

Treatment Area

Since the treatment or work area is the most important portion of the training facility, it is the largest and most accessible. Other supportive and subsidiary rooms are located adjacent to this main room.

The size of the treatment area (room) should be about 50 to 60 feet long, about 25 to 30 feet wide, and about 10 feet high.

Training Room

1. Lockable Door	8. Counter	14. Freezer	21. Bookcase
2. Powder, Benzoin Bench	9. Sink	15. Table (ice crusher)	22. Locker
3. Therapy Table	10. Stool	16. Medicine Cabinet	23. Weight Scale
4. Physical Modality	11. Ankle Wraps	17. Shelves	24. Bulletin Board
5. Taping Table	12. Hydroculator	18. Dehumidifier	25. Mirror
6. Knee-Taping Bench	13. Water Outlet (for freezer)	19. Desk	
7. Rubber Runner		20. File	

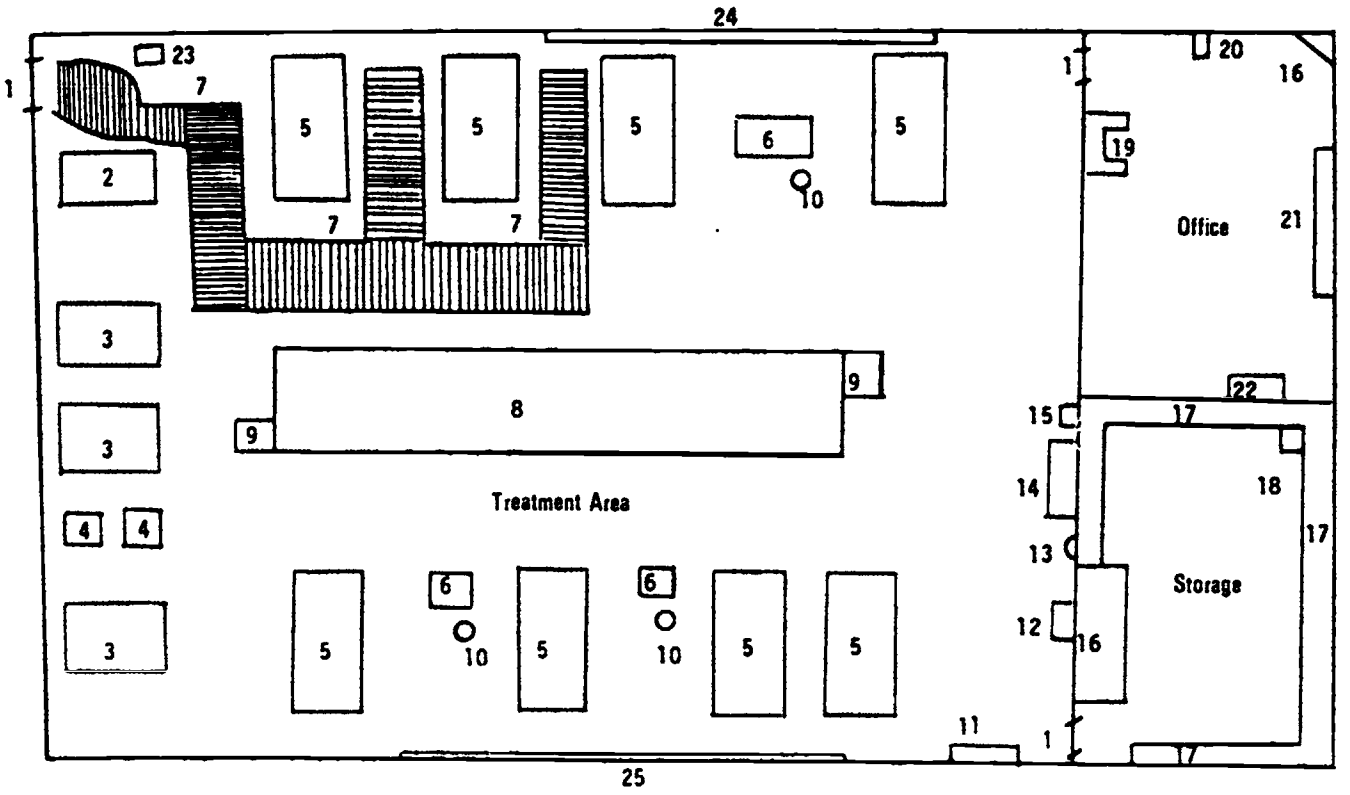


Figure 8.

Adequate door and hall sizes are necessary to allow for the proper movement of equipment and supplies, and for easy ambulance access.

Equipment and Arrangement

Equipment layout can be planned according to the types or categories of treatment offered. Generally, there are certain commonly accepted modes of treatment, and the necessary equipment is efficiently arranged to provide for clearance and unobstructed aisles. The various types of treatment are segregated to prevent conflict or crowding. Examples of the types of treatment are:

1. Taping and wrapping
2. Ultrasound therapy
3. Ice therapy
4. Steam packs
5. Hydrotherapy
6. Steam or sauna

Taping and wrapping necessitates the placement of a benzoin and powder bench just inside or outside the entrance to the room to facilitate use before reaching the dressing or taping areas. Rubber runners must extend between the benzoin and power bench and the taping tables to prevent benzoin discoloration of the floor from the feet of athletes who travel between the two areas. Closeness of the taping area to the exit allows athletes to pass quickly through the doorway after a taping is completed.

Some trainers prefer not to use a benzoin and powder station. If such a station is desired, consideration should be given to locating it outside the training quarters because of the mess which usually results.

Another treatment area which should be relatively close by is the portion which deals with the treatment of injuries (i.e. lacerations) that require surgical care by a physician. Placement near an entrance allows for prompt treatment and lessens disruption of adjacent treatment areas.

It is also recommended that a table or counter be located near the training room entrance, or otherwise away from traffic, to accommodate small article dispensing. Overall room traffic will be lessened if this busy portion of the treatment area is located near the room's edge.

An estimate of the frequency of occurrence for specific types of injuries helps to determine the location of treatment areas. For example, severe strains, bruises, and sprains which, because of their lesser number but prolonged period of treatment, are generally placed away from the busier traffic routes. The necessity for connections for the equipment used in treating this type of injury requires locations near walls.

Special areas must be provided for electrotherapy treatment and hydrotherapy treatment. Adequate space is required not only for therapy apparatus, but also for necessary storage shelves and work tables. Heat lamps may be suspended overhead to conserve valuable floor space.

Hydrotherapy treatment is generally done in a room specially designed for that type of treatment. It is desirable to partition off a place which resembles a shower in relation to the floor, ceilings, and walls. It is possible to include windows to make the hydrotherapy area visible from other areas. Humidity is best controlled if the hydrotherapy room is self-contained rather than open. Equipment usually found in a hydrotherapy room includes whirlpool baths, a foot tub, a shower stall for pretreatment cleaning, a douche shower attachment, and several steam bath cabinets and/or a sauna arrangement.

The special accommodations for a hydrotherapy room must include: plumbing attachments for whirlpool baths, electrical outlets, floor drains, shower curtains, and shelving and cabinet spaces for towels and other supplies. It is advisable to pitch the floor adequately to allow water drainage toward floor outlets at the sides of the room. (See Figure 9 for example taping area and hydrotherapy room layouts.)

The furniture for the training rooms of a large institution might include about eight tables for taping or wrapping and three or four tables for therapy. It is advisable to have a separation between the taping and therapy tables in order to avoid confusion and work space conflict.

Hydrotherapy and Taping Areas

1. Lockable Door
2. Sink
3. Shower Booth
4. Steam Chest
5. Whirlpool
6. Storage Cabinet, Shelves
7. Counter (over 4-ft. shelves)
8. Tables (tape and therapy)
9. Powder and Benzoin Table
10. Rubber Runner
11. Bulletin Board
12. Mirror
13. Weight Scale
14. Foot Bath

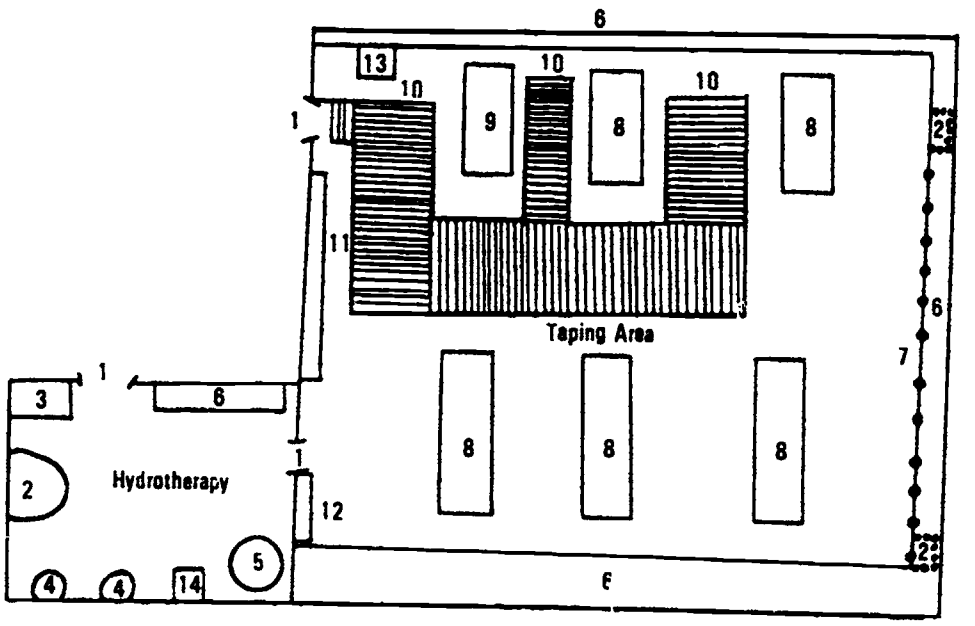


Figure 9.

The therapy tables and the taping tables should have similar dimensions to make them more versatile. A three-foot minimum table height is recommended to facilitate taping and wrapping without uncomfortable bending for the trainer, and a full-length table is suggested to allow athletes to lie down during therapy periods. Taping tables should have smooth, impervious tops finished in formica or an epoxy enamel. Treatment tables should have foam rubber padding covered with a tough, vinyl-coated fabric. The physical modalities should be located adjacent to the therapy tables for convenience.

For the benefit of the trainer, it is desirable that knee-taping benches be placed between some of the taping tables. These benches should be about one foot high to allow an athlete's knee to be taped without undue strain on the trainer.

One modality that has become increasingly popular is ice therapy. An ice-making machine and a freezer should be located in the training room to maintain the ice supply. The freezer should be located next to the room entrance so that athletes may readily obtain ice as they enter. Freezers may be of either the upright or horizontal type. The latter provides easier access.

Next to the freezer, a water outlet, equipped to handle a hose with a nozzle control, should be provided. With the hose, containers can be filled while in position in the freezer.

In this same area, a hydroculator may be located. The hydroculator is used for steam packs for contrast therapy and treatment of infections.

Other furnishings which should receive adequate planning include ankle wrap rollers, bulletin boards, weight scales, and mirrors.

The ankle wrap rollers should be located at various places in the training room, such as a corner table. If help is unavailable, the athletes can roll their own ankle wraps.

A bulletin board facilitates communication which is essential to the successful operation of a training room. A logical location for a large bulletin board is near the main entrance where it can be advantageously used by trainers and coaches alike.

Weight scales are necessary for weighing athletes in all sports, especially football during warm-weather practice sessions. Scales can be conveniently placed near the entrance to minimize room traffic.

Full-length mirrors are important to aid athletes following routines prescribed with certain types of therapy. For example, an athlete might use a mirror to ascertain that he is doing a shoulder routine properly.

Personnel

Student trainers, as well as the trainer and the team doctor, are very important personnel in the treatment area. The student trainers are of great assistance if responsibilities are delegated properly. They can help with the organization of equipment, traffic control, and cleaning and adjustment maintenance. (Training areas often

need cleaning twice a day, and this does not usually fit into custodial schedules.) Student trainers receive an excellent teaching experience which encourages those who are interested in training as a career.

Storage Area

Storage space should include a secure room of approximately 120 square feet adjacent to the work area. Since most budgets require that supplies be purchased before the beginning of an academic year, facilities must be provided for long-range storage. Adequate dryness can be attained with a dehumidifier in the storage area.

It is suggested that storage shelves be adjustable, wall mounted, and extend to the ceiling. The space between the shelves should be planned to insure that necessary items will fit. A large lockable medicine cabinet should be provided to store medical supplies and sterile materials.

If storage must be included in a one-room layout, shelves should be located on the wall across from the entrance. A work counter with a formica surface can be placed on top of four-foot high shelves and extend along the entire wall. The work counter should measure about 30 inches from the outer edge to the wall. One or two sinks should be placed toward the end(s) of the counter and should have both hot and cold water faucets. If the work counter is against the wall, shelving may be placed over the sinks for the storage of cups, soap, salt tablets, etc.

A work counter storage complex may also be located in the center of a training room. With this type of arrangement, the counter should be double width with cabinets underneath and accessible from both sides. Additional storage area is required for bulky materials.

Office Area

The office serves various purposes. It provides a logical place for the injury- and treatment-record files, and if private, this space allows the athlete to discuss confidential matters with the trainer. A separate room should also be provided for the supervising doctor.

Room decor should be that of an office rather than that of a treatment area. It should be neat, orderly, and efficiently arranged.

The training room office should include the necessary number of desk(s) and filing cabinets. A large medicine cabinet should be included for items the trainer does not want issued or used without direct supervision. The team doctor may use this cabinet as well.

Other things which might readily be included in the office area are book cases, lockers, and anatomical charts and models. The book cases provide a ready location for the numerous training reference books. The lockers provide places for the storage of extra work clothes for the trainer and the doctor. The charts and models should aid in describing injuries to the athletes.

CHAPTER 9 SAUNA AND STEAM BATHS

The use of sauna or steam baths in schools is questionable. The health benefits claimed for them are marginal when compared to the risks. Therapeutic and weight reduction treatments for athletes can be conducted very well by utilizing steam or dry heat cabinets under the direction of the trainer.

Health authorities recommend that people with high blood pressure, heart disease, significant obesity, or who are under medication or alcoholic influence should not take steam or sauna baths without the express approval of their physicians. Schools or colleges which choose to install a sauna or steam room should be cognizant of the dangers and should make every effort to minimize them through proper installation and effective safety procedures.

Location

Steam or sauna baths should be located in the main dressing area and adjacent to showers. They should be accessible from the training room but not placed inside so that students other than athletes can use them. Steam or sauna baths should not be installed adjacent to offices or other rooms where heat build-up would be a problem. The entrance to the sauna or steam room should be visible to locker room attendants from their regular work stations.

Sauna

Detailed specifications are available from manufacturers of sauna equipment and supplies. Sauna is essentially dry heat, although varying degrees of humidity are attained by pouring water over heated rocks. Temperatures are higher in the sauna than in steam baths.

Walls and Ceiling

The walls and ceiling should be insulated by a thick, foil-faced fiberglass blanket. The aluminum foil must be toward the inside of the room. Building codes often require ⅝-inch gypsum wallboard, one hour fire rated, on wall and ceiling framing before the interior finish is installed. This is recommended whether or not the building code requires it. Wall framing members should be 2-inch by 2-inch dry cedar or redwood boards on 16-inch centers. Ceiling height should be 84 to 96 inches, depending on the room size. Ceiling joists should be dry fir on 16-inch centers with dimensions (in inches) of 2 by 4, 2 by 6, or 2 by 8, depending upon the weight to be supported.

The interior walls should be 1-inch by 4-inch V-joint tongue and groove, vertical grain, kiln dried redwood or cedar. All boards

should cover the full length of the room, if possible. Boards should be blind nailed with 5D galvanized finish nails or staples of equivalent strength.

Benches

Benches should be constructed of 1-inch by 4-inch or 2-inch by 2-inch strips of vertical grain, kiln dried redwood or cedar with face and framing members of 2-inch by 4-inch or 2-inch by 6-inch boards of the same material.

Benches should be 20 inches wide and run the length of the available space, 20 to 24 inches above the floor. A double tier of benches is recommended on at least one side of the room. The vertical clearance between benches should be 20 inches and the lower bench should extend 20 inches beyond the outer edge of the upper one. Asbestos boards should be installed beneath the benches at an angle of approximately 45 degrees to allow drops of perspiration to run toward the floor drains rather than form puddles and stain the lower benches.

Floors

The floor should be hardened concrete, impervious to moisture and stains. Adequate drainage is necessary to facilitate thorough daily cleaning and sanitizing. Carpeting is not recommended. However, a throw rug placed upon a removable slotted rack of redwood or cedar attains the same effect. Such rugs should be laundered daily.

Heaters

Wall-mounted heaters conserve floor space and are recommended for smaller saunas. Heaters vary in size and wattage requirements and should be selected from manufacturers' specifications.

Controls and Safety Features

Most heaters have self-contained controls and can be operated within the room. It is recommended that these be removed from the heater except for a cut-off switch. Temperature controls should be on a panel outside the room and inaccessible to the users. The same should hold true for the switch which turns the heat on. An automatic timer should be installed to cut off the heating unit at the desired time. In addition to the automatic time and temperature controls, a clock and thermometer should be clearly visible to the occupants of the sauna. A thermopane window should be installed so attendants can inspect the room. Warnings should be posted at the entrance designating the maximum exposure time and the health conditions which make the sauna undesirable or dangerous.

Some medical authorities recommend that no individual should be in an unattended room for more than 15 to 30 minutes. Also recommended is a back-up switch thermostatically controlled to keep the heat from exceeding 195 degrees F.

Sanitary sheets are recommended to prevent the spreading of skin diseases by way of the benches. The seats are cleaned with a special oil available at sauna supply dealers.

All handles (bucket, dipper, door pulls, etc.) should be of wood or other insulated material. Metal becomes very hot and may cause

severe burns if touched.

Steam Rooms

The temperature in a steam room is lower than in a sauna. Walls, floor, ceiling, and benches should be covered with ceramic tile. The floor should slope toward drains covered with noncorrosive metal gratings. The ceiling should slope at a slight angle to allow condensing moisture to run off and thus prevent water spotting.

If the steam room is wood framed rather that of concrete, a galvanized sheet of metal should be installed outside the walls and beneath the floor to trap moisture condensing between the studs. Plaster or other wall finish on the outside of the room can be damaged by such condensation. The galvanized pan beneath the floor should collect all condensate from the walls and carry it to a drain.

The steam inlets should be located beneath the benches but controlled from the outside. The same remote control devices suggested for saunas are also recommended for steam rooms. The temperature of a steam room should not exceed 125 degrees F.

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