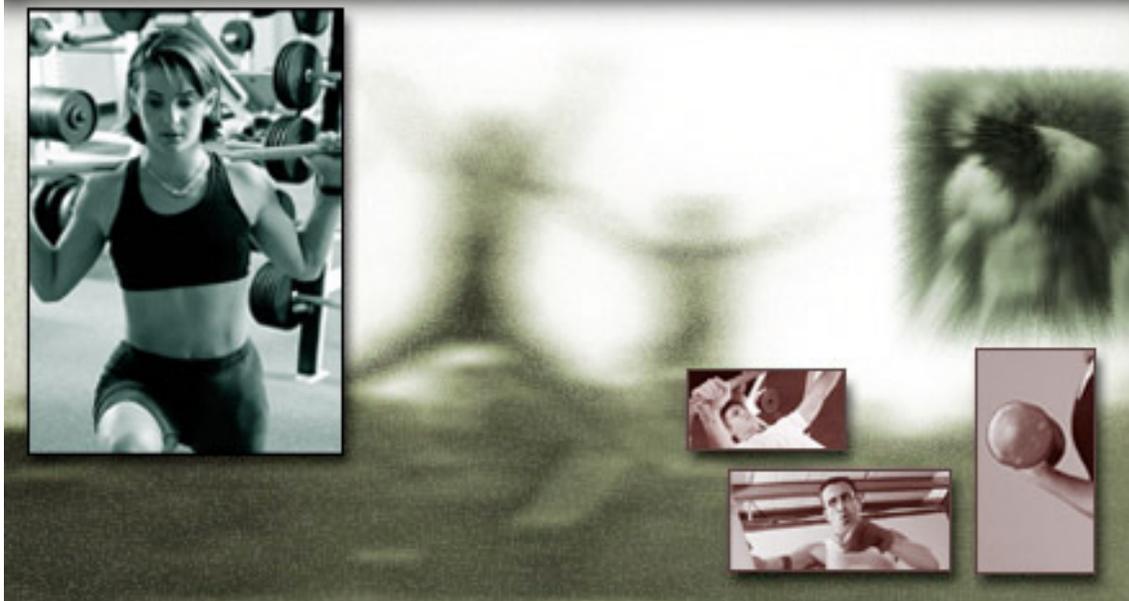


- 1 INTRODUCTION
- 2 PROGRAMMING CRITERIA
- 3 DESIGN CRITERIA
- 4 FUNCTIONAL AREA & SPACE
- 5 ILLUSTRATIVE DESIGN INFO

★ New Topic

USAF FITNESS FACILITIES DESIGN GUIDE



This guide provides the basic guidelines for designing fitness facilities to enhance combat readiness and quality of life for the entire Air Force community.

Any comments or suggestions regarding this guide should be directed to:

Margaret Treland
 HQ AFSVA/SVPAF
 10100 Reunion Place,
 Suite 402
 San Antonio, TX 78216
 (210) 652-7021
 DSN 487-7021
margaret.treland@agency.afsv.af.mil

Randall Lierly
 HQ AFCEE/DCD
 Headquarters Air Force Center
 for Environmental Excellence
 2735 Louis Bauer Drive
 Brooks AFB, TX 78235-5133
 (210) 536-4208
 DSN 240-4208
randall.lierly@brooks.af.mil

Note: For best results when printing a hard copy of these documents from MS Internet Explorer, click your mouse somewhere in the text area of the main frame of the document you wish to print and use the default menu selection of "Only the selected frame". This will allow you to print multiple pages of sections and prevent printing out menu frames that are not needed.

October 1999

[Home](#) | [Table of Contents/Site Outline](#) | [E-mail](#) | [AFCEE](#)



A. Purpose

This guide provides the basic guidelines for evaluating, planning, programming, and designing new and renovated fitness facilities on Air Force installations. It is intended for use by Commanders, Headquarters Staff, Directors, Users, Civil Engineers and designers. This design guide is intended to:



1. Highlight guidelines and criteria that should be considered during the evaluation, planning, programming, and design processes and provide a consolidated listing of additional resources where more detailed information can be obtained.
2. Present an appropriate USAF image for fitness facilities by organizing criteria into a concise user-friendly format for evaluating new or renovated fitness facilities.

B. Fitness Facility Description

1. Fitness Mission

Enhance combat readiness and quality of life for the entire Air Force community through professionally delivered comprehensive fitness programs using state-of-the-art facilities and equipment.

2. Requirements

Facilitate the readiness, fitness, and morale of Air Force members by providing effective, efficient, and pleasant spaces for individual and group

exercise, training, team and individual sports, testing, and necessary support.

- Fitness Training
- Fitness Testing
- Fitness Equipment Spaces
- Group Exercise
- Team and Individual Sports: intramural, extramural, varsity
- Administrative Functions
- Support Functions
- Health and Wellness Center (HAWC)



C. Overview of Design Guide

1. Scope

The information in this guide applies to the design of all new construction projects as well as to major and minor renovation projects. Specifically, it provides guidelines for determining programming requirements, evaluating and planning the site, and designing all outdoor and indoor spaces.



The guide provides basic information and references that should be consulted in order to program, design, and execute a successful fitness facility project. Other related AF documents and project-specific criteria, such as the [American College of Sports Medicine](#) (ACSM) Health and Fitness Facility Standards and Guidelines, should also be consulted.

2. Use of This Document

This document has been divided into chapters that have been organized to facilitate the design process required to create a new or remodeled fitness facility. Below is an overview of the content of each chapter in this design guide:

- Chapter 2, Programming Criteria, provides the basic guidelines for sizing and configuring a facility and includes diagrams that clarify the desired relationships between functions, as well as a table summarizing scope requirements for each facility.
- Chapter 3, Design Criteria, covers information relevant to all phases of design and contains guidelines for organizing the site and designing and

planning the building's utilities, layout, character and circulation, and systems.

- Chapter 4, Functional Area and Space Guidelines, provides detailed design requirements for each functional space in a typical facility. It includes photographs and illustrations that can aid in the preparation of preliminary and working drawings.
- Chapter 5, Illustrative Design Information, contains examples of floor plans, site layouts, and other design drawings that show how the guide's design principles can be applied to a particular project.

April 1999



A. General

1. A Range of Sizes

This chapter identifies the requirement for new and existing fitness facilities for Air Force installations. Included are space criteria for small, medium, and large facilities determined by the assigned base population. The space criteria shall determine the number and size of the core elements for each installation. For purposes of fitness center facility sizing, base population is defined as the number of assigned US military personnel (Air Force and other, to include Air Force Reserve and National Guard) and interservice support agreements with other US services, plus 25 percent of dependents (aged 14 years or older).

When the installation regularly serves a substantial number of military transients (PCS students, or members TDY greater than 30 consecutive days), the average daily strength, based on a firm projection of the total yearly load of such transients, may be added to the base population. For overseas bases, DoD civilians assigned may be counted as part of the base population. For PACAF and USAFE, assigned military members of host nations or NATO alliances may be added to the base population.



When planning a fitness facility, consideration should be given to core spaces and enhanced spaces. Core spaces must be included in all fitness facilities. Enhanced spaces may be included at the discretion of the installation commander, but may not displace core spaces. The space allocation for core and enhanced areas varies by the installation size. Flexibility and expansion requirements are significant

issues to be addressed during the design of all facilities.

The following table shows the base classification:

Table 1: Base Classification	
Base Classification	Military Population
Small	Below 1,000
Medium	1,000 - 5,000
Large	Over 5,000

2. Organizational Design Team Participation

Cooperation between participants representing all organizations is critical to the success of any project. Therefore, the organizations and individuals listed below should be involved in the planning, programming, and design of a fitness facility to ensure that all functional requirements are met. These parties should be involved in the project until its completion. All design input should be documented, with resolution included in the project files for later reference as parties change. This will prevent inadvertent omissions in requirements. Refer to the USAF Project Manager's Guide (Project Definition Chapter) for information concerning the Design Team Participants from other organizations.

- Installation Senior Commanders
- Installation Services Squadron Commander and Combat Support Flight Commander
- Fitness Facility Director and Staff
- Installation Civil Engineer Squadron (including Programming, Planning, Design, Operation, and Maintenance)
- Installation Communications Squadron
- Installation Safety Officer
- Installation Fire Chief
- Installation Security Forces
- Installation Medical Group
- Health Promotion Manager/Health Promotion Flight Chief
- MAJCOM Staff (Services and Civil Engineering)
- HQ AFSVA fitness specialists (SVPAF)
- Architectural and Engineering Consultants

B. Building Code and Accessibility Considerations

1. Codes and Standards

All Air Force fitness facilities, regardless of location, must comply with applicable

Department of Defense, Air Force and MAJCOM construction and design standards and should be in voluntary compliance with commercial building codes. In the event of conflict between Air Force standards and local building codes, the more stringent requirement shall apply. Reference [Design and Construction Standards and Execution of Facility Construction Projects AFI 32-1023](#) for current guidance on applicable Air Force requirements.

2. Accessibility Standards

All Air Force fitness facilities shall be designed to be accessible to and usable by persons with disabilities. New construction, as well as alterations to existing facilities, must be designed and constructed to meet the requirements of the [Americans with Disabilities Act Architectural Guidelines](#) (ADAAG) and the [Uniform Federal Accessibility Standards](#) (UFAS), with the most stringent standards applied in the event of conflicts.

C. Site Issues

The site is to be selected as part of the general plan for each base. As a general rule, the facility should be located within walking distance of user groups such as dormitories, housing, community centers, outdoor sports facilities/fields, and other compatible facilities.

1. Selection & Site Placement Considerations

The selected site should allow for future expansion of the facility, parking, and outdoor activities, as required. Many factors should be carefully evaluated when determining site placement possibilities. These considerations should include things such as the availability and capacity of required utilities, mass/scale of the facility relative to adjacent structures, and relationships to existing vehicular and pedestrian circulation patterns.

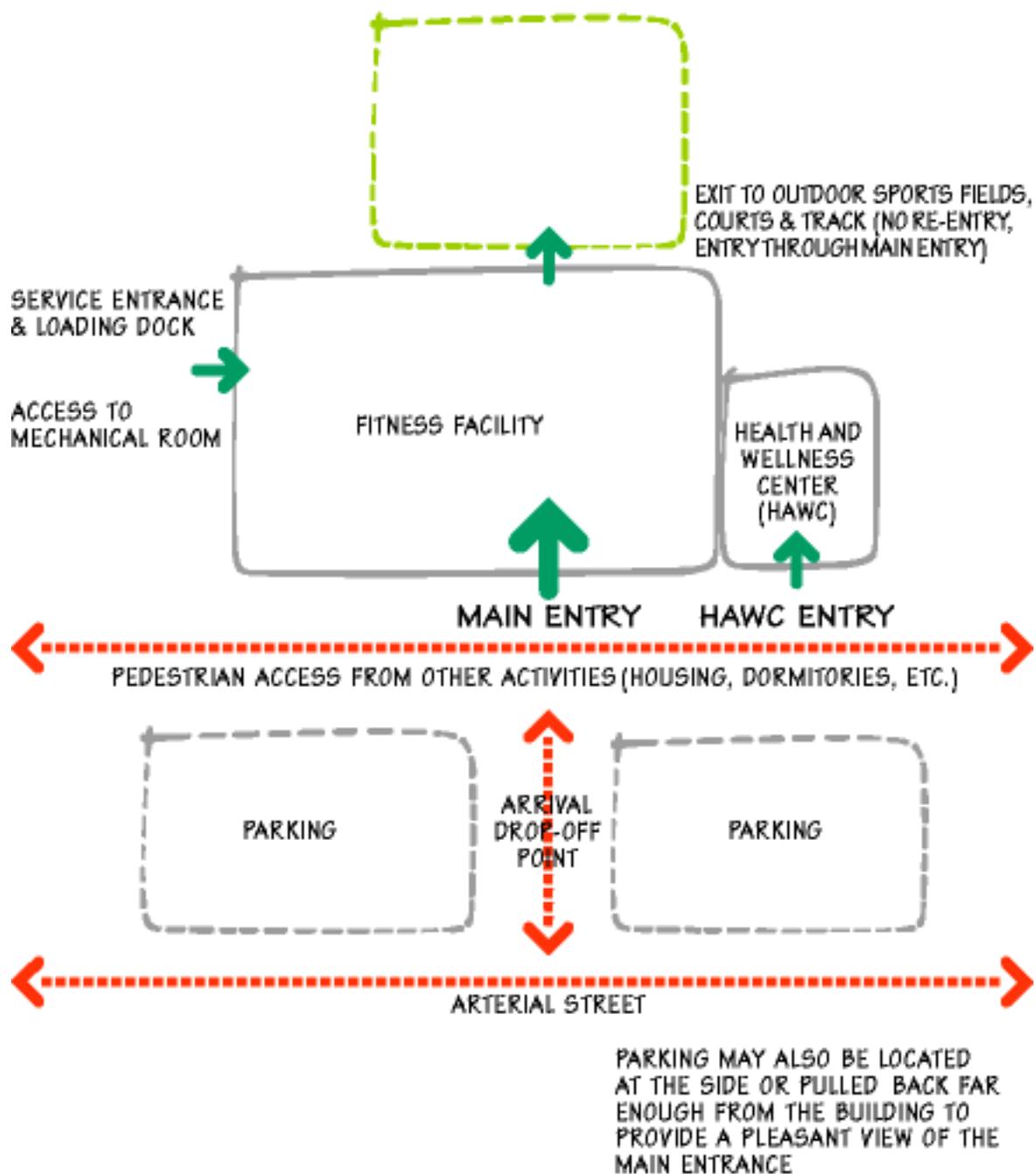


Figure 1

D. Fitness Facility Functional Relationships

1. Overall

The control point should be central to the facility with direct views into all activity spaces and should also separate the secured from the unsecured areas.

This diagram below shows the functional relationships between the many core spaces in a fitness facility. It does not represent the only possible layout. Other floor

plan configurations are acceptable if they maintain the same relationships between spaces. Refer to Table 6: Functional Proximity for more information regarding functional relationships. For those facilities that will have enhanced areas, refer to example floor plans in Chapter 5 for relationships.

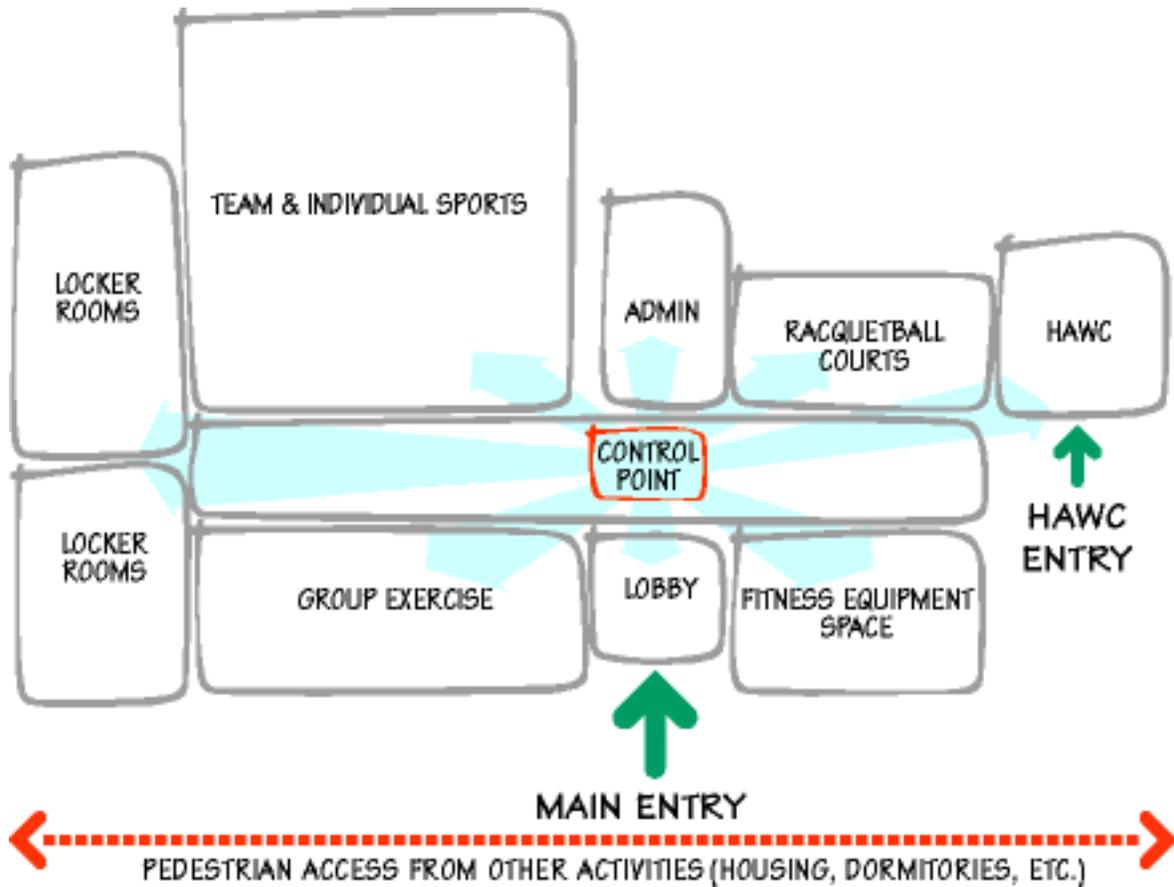


Figure 2

2. Core Areas

a. Lobby

The lobby and its activities are open to anyone entering the fitness facility. Access to all other areas is controlled.

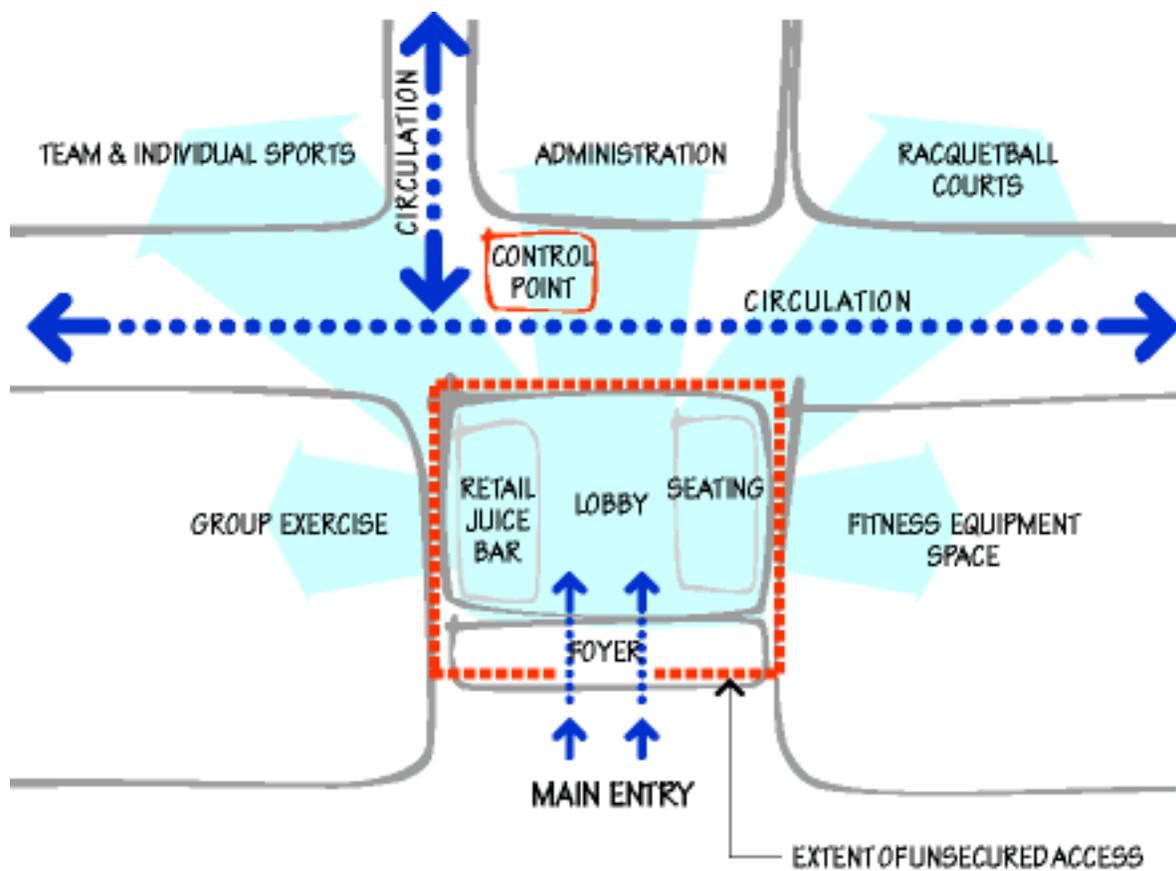


Figure 3

b. Administration

The administration suite should provide offices for the Facility Manager, Operations/NCOIC (Non-commissioned Officer in Charge), and Program Directors, and include a common workroom for other employees. The administration suite should be adjacent to the control point.

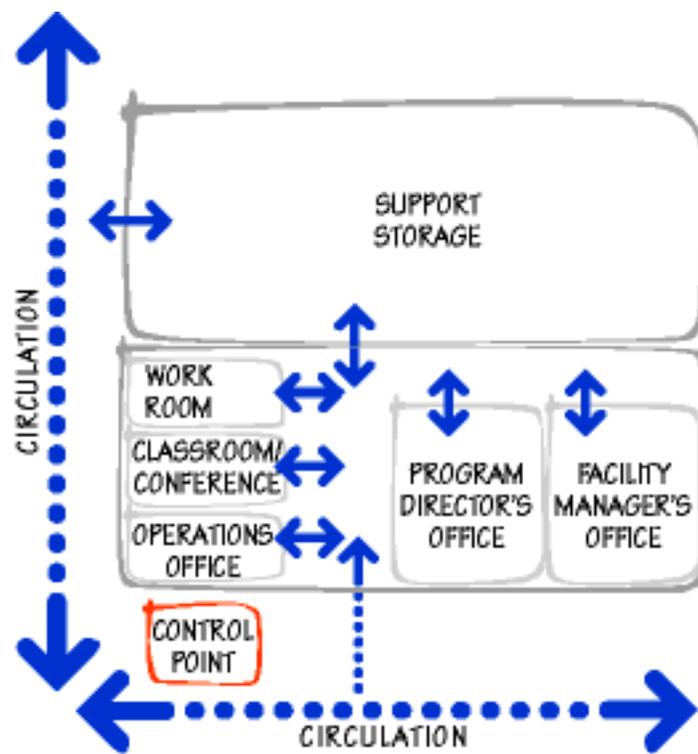


Figure 4

c. Fitness Equipment Spaces

The stretching, cardiovascular equipment, resistance weight training, and free weight room should be combined into a single space to allow greater flexibility. Consider utilizing planters or other moveable space partitions to separate the space as desired.

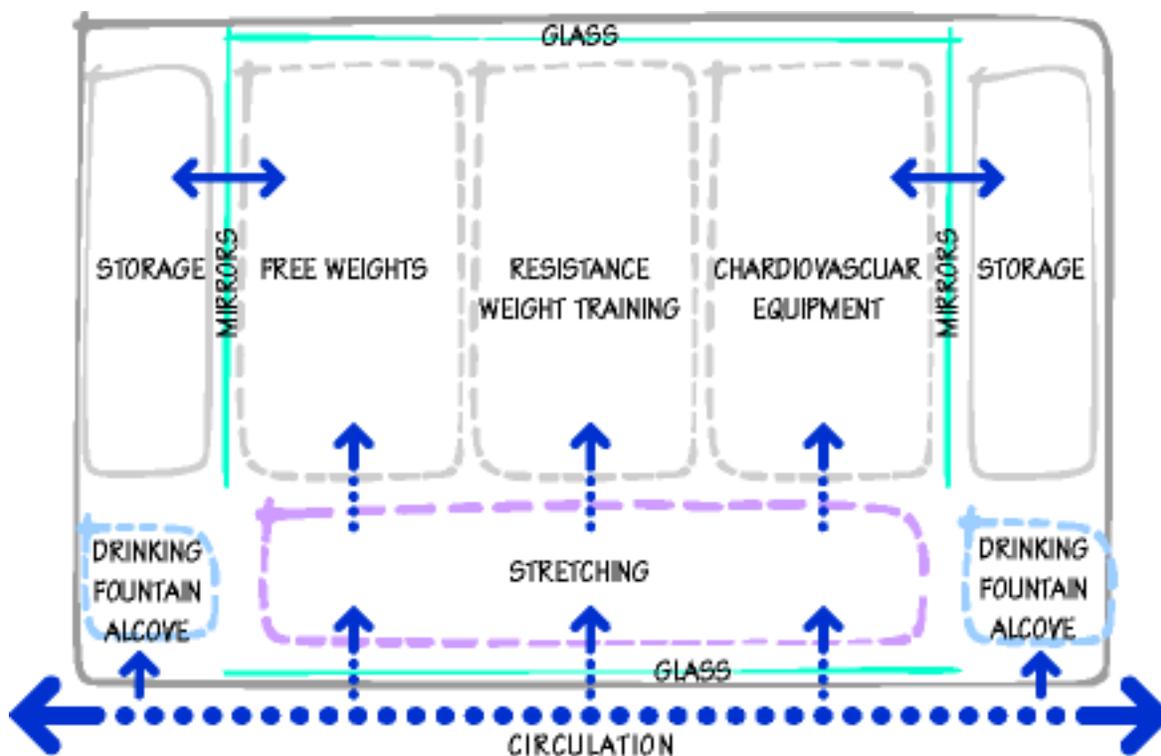


Figure 5

d. Group Exercise Spaces

The group exercise spaces should be flexible and allow multipurpose use. Temporary or moveable partitions should be used to divide spaces. Consider the needs of activities such as aerobics, martial arts, boxing, and wrestling when programming and designing group exercise spaces.

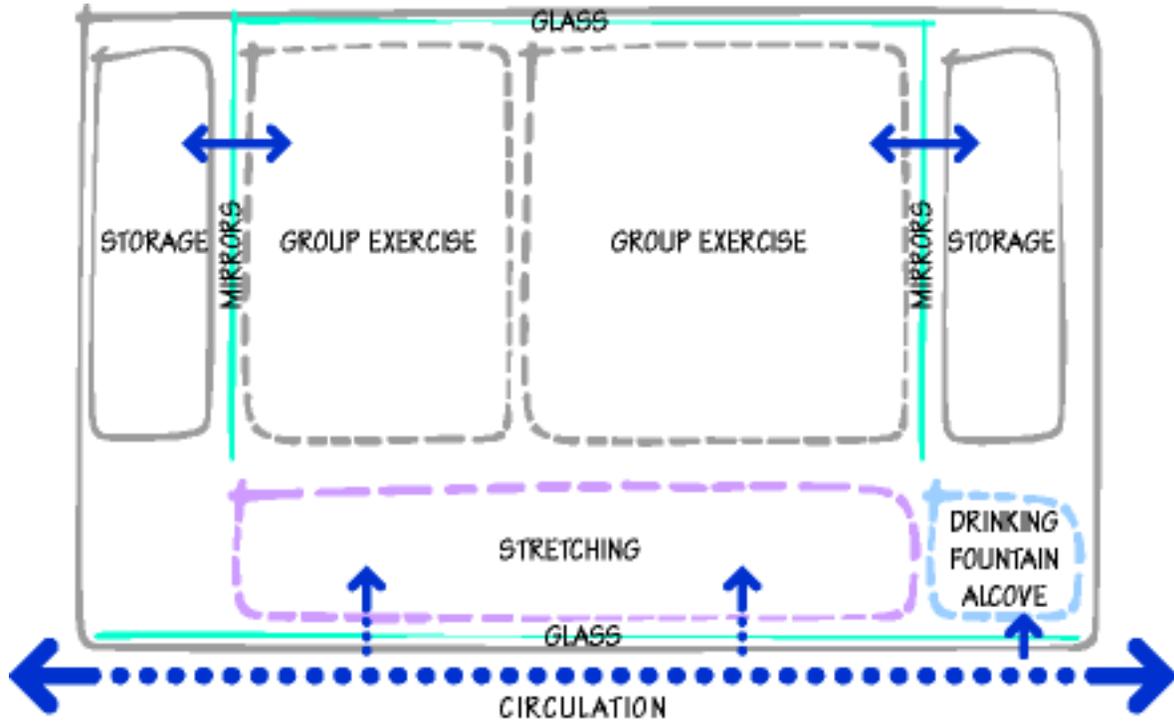


Figure 6

e. Gymnasium

A canvas drop curtain may be used to separate the basketball cross courts to limit distractions and stop stray balls. Telescoping bleachers should be utilized to maximize flexibility.

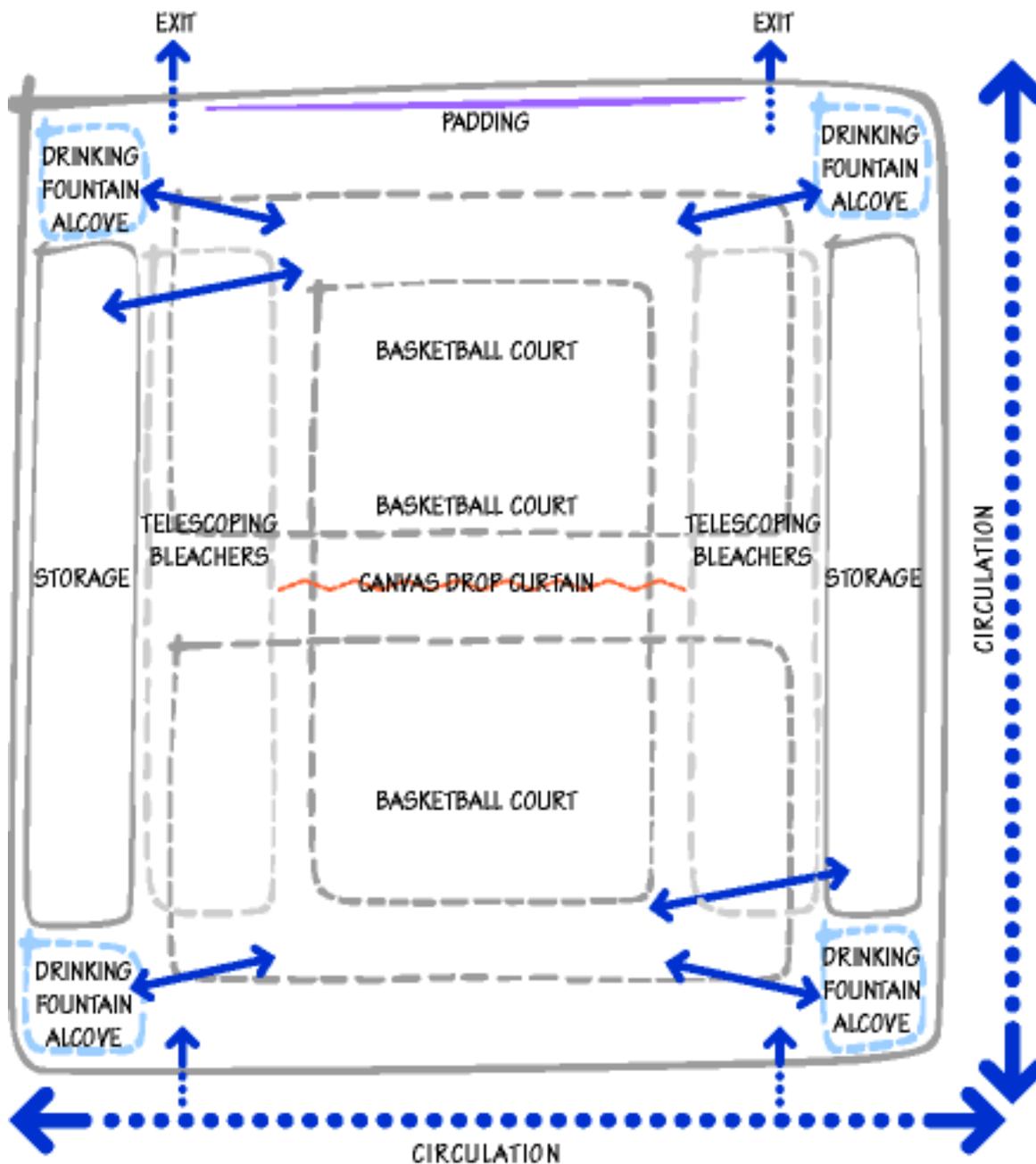


Figure 7

f. Locker Rooms

Separate public restrooms should be provided with access to the main circulation route. A second restroom within the locker room is provided specifically for use from the locker, sauna, and shower areas. The shower area then becomes the central transitional space providing access to the sauna and the pool, should one be provided. This promotes bathing prior to use of the sauna and the pool. Location of locker rooms is meant to facilitate the addition of an adjacent pool at a later date. If no requirement for a pool is anticipated, a more central location for the locker rooms may be preferable.

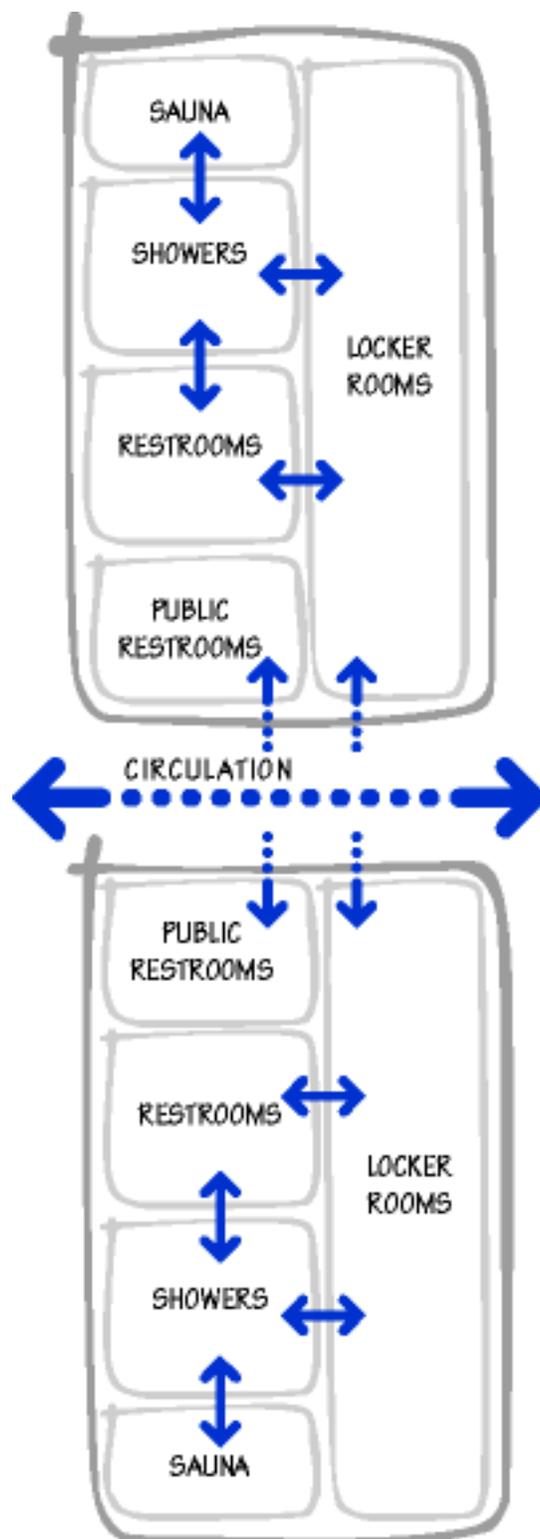


Figure 8

g. Health and Wellness Center (HAWC)

The HAWC should be accessible from both the exterior and interior of the fitness facility.

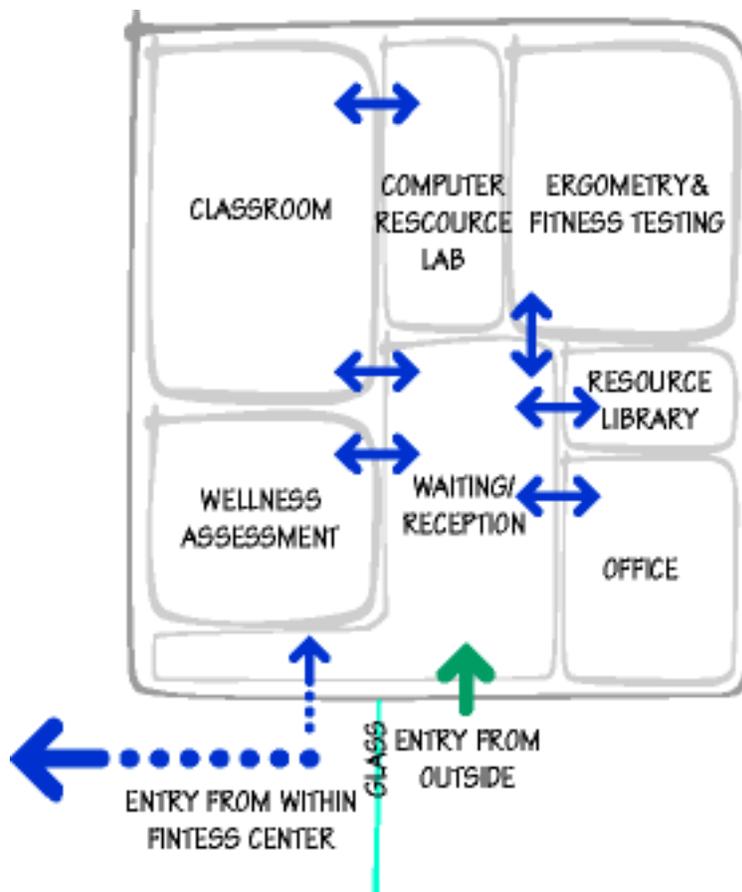


Figure 9

h. Support Spaces

The support spaces should be adjacent to the service entrance and the administration suite.

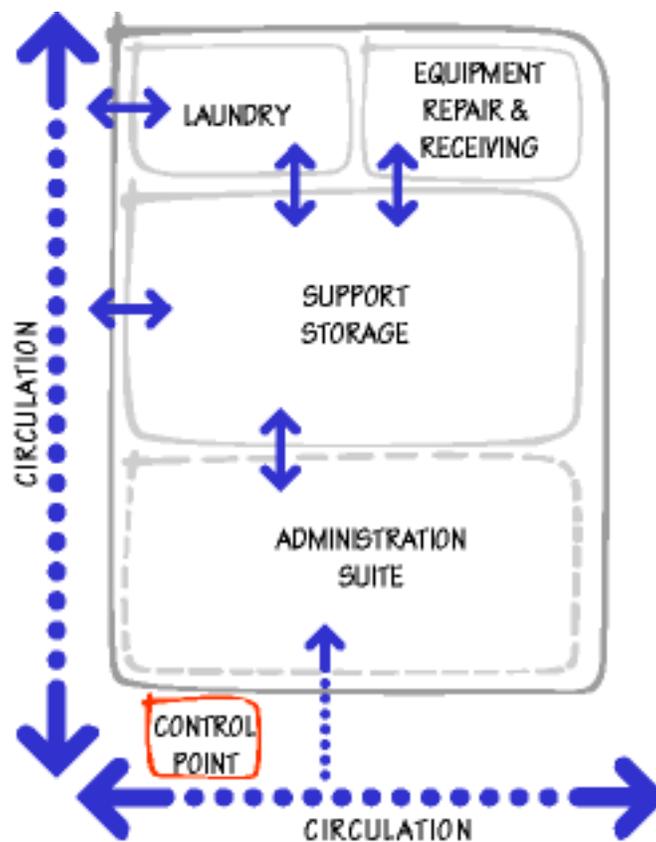


Figure 10

i. Racquetball

The racquetball courts should be located along a circulation path with areas for stretching, viewing, and officiating.

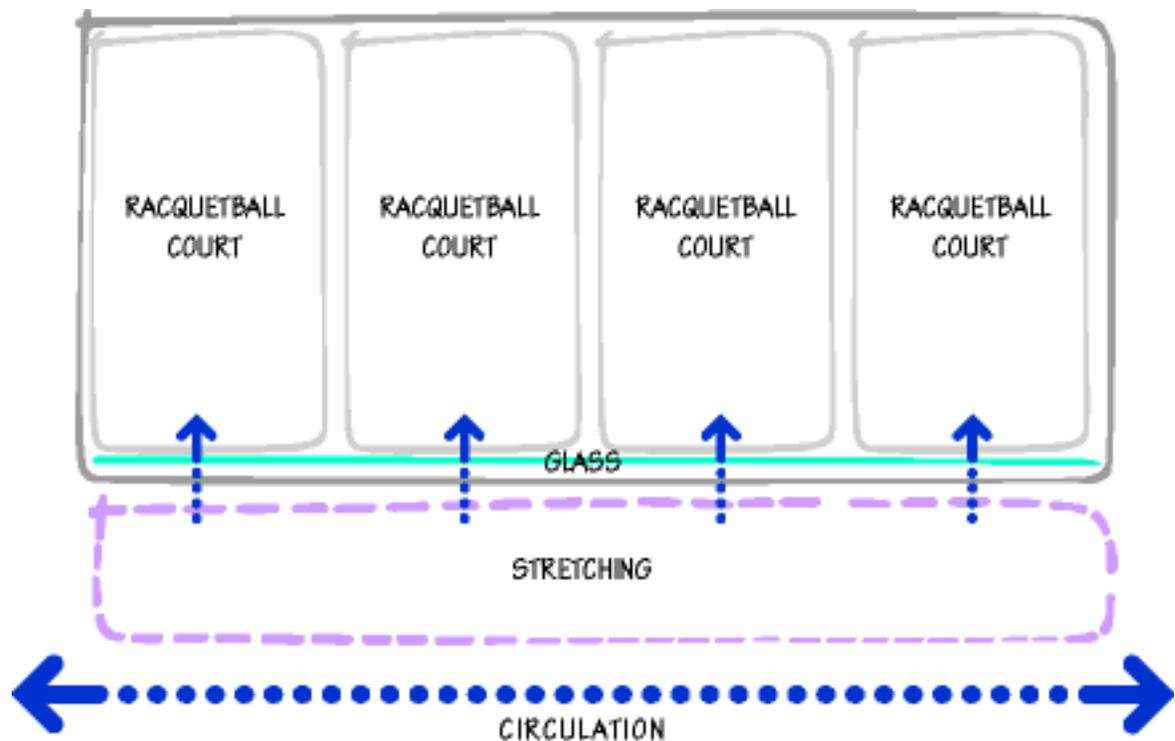


Figure 11

3. Enhanced Areas

The location of enhanced areas depends upon the specific layout of the fitness facility. Certain areas for enhanced activities such as a rock-climbing wall or machine should be located within core areas, such as the gymnasium. These types of activities should be within sight of the control point. Following are examples of enhanced areas:

- Lap Pool
 - Indoor Track
 - DV (Distinguished Visitors) Lockers
 - HAWC Relaxation Area
 - HAWC Kitchen/Food Demonstration Area
 - Massage Room
 - Expanded Retail Area
 - Expanded Juice Bar
 - Child Play Area
 - Spa
-

E. Space Allocation Recommendations

The Space List and Area Recommendations are minimum guidelines and must be adhered to.

The size of the core facilities will vary with the size of the installation; However, the core areas must be present at each Air Force Installation before any Enhanced Areas are added.

Table 2: Minimum Space Allocation Requirements covers three sizes of installations: small, medium, and large. The square footage figures for the components are the net area. The gross area is then calculated by adding 30% to provide space for pedestrian circulation, mechanical rooms, and public restrooms. Because of higher utilization of overseas facilities, bases may add an additional 10 percent to authorized facility size. The additional space should be applied to the core fitness areas.

To accommodate growth at mega-large bases, an additional 5,000 square feet (464.5 square meters) may be added to the facility gross space for every 1,000 base population (as defined in Chapter 2.A.1.) For example, a base of 10,000 would be allowed an additional 25,000 square feet (2,322.5 square meters). The MAJCOM should determine whether it is more cost-effective to build one large complex or multiple smaller-sized facilities. Priority areas to consider for additional square footage are the cardiovascular, resistance machine, and free weight equipment

spaces, group exercise spaces, and locker areas.

[See Table 2: Minimum Space Allocation Requirements](#)

April 1999

Table 2: Minimum Space Allocation Requirements

SPACE	SMALL FACILITY			MEDIUM FACILITY			LARGE FACILITY		
	Qty	Sq. M.	Sq. Ft.	Qty	Sq. M.	Sq. Ft.	Qty	Sq. M.	Sq. Ft.
Core Fitness Areas (Mandatory)									
Lobby	1	55.7	600	1	74.3	800	1	92.9	1,000
Administration	2	27.9	300	3	37.2	400	4	55.7	600
Support									
Laundry	1	18.6	200	1	27.9	300	1	37.2	400
Support Storage	1	46.5	500	1	92.9	1,000	1	139.4	1,500
Equipment Repair & Receiving	1	23.2	250	1	27.9	300	1	32.5	350
Locker Rooms									
Men's Locker Room (w/Sauna)	1	278.7	3,000	1	325.2	3,500	1	371.6	4,000
Women's Locker Room (w/Sauna)	1	232.3	2,500	1	278.7	3,000	1	325.2	3,500
Gymnasium	1	743.2	8,000	2	1,486.4	16,000	2	1,486.4	16,000
Group Exercise									
Stretching Area	1	9.3	100	1	13.9	150	1	18.6	200
Group Exercise - Small	1	74.3	800	2	148.6	1,600	1	74.3	800
Group Exercise - Large	1	185.8	2,000	1	185.8	2,000	2	371.6	4,000
Fitness Equipment Spaces									
Stretching Area	1	9.3	100	1	13.9	150	1	18.6	200
Cardiovascular Equipment	1	185.8	2,000	1	232.3	2,500	1	278.7	3,000
Resistance Weight Training	1	130.1	1,400	1	148.6	1,600	1	185.8	2,000
Free Weights	1	148.6	1,600	1	167.2	1,800	1	185.8	2,000
Racquetball Courts	4	297.3	3,200	4	297.3	3,200	6	445.9	4,800
Net Total		2,466.5	26,550		3,558.1	38,300		4,120.1	44,350
Add 30% for Circulation, RR, & Mech.		739.9	7,965		1,067.4	11,490		1,236.0	13,305
Core Areas Gross Space		3,206.4	34,515		4,625.5	49,790		5,356.1	57,655

Core HAWC Areas (Mandatory)									
Reception/Lobby	1	18.6	200	1	18.6	200	1	18.6	200
Office Space	1	37.2	400	1	46.5	500	1	55.7	600
Classroom	1	58.5	630	1	74.3	800	1	92.9	1,000
Computer Resource Lab	1	9.3	100	1	18.6	200	1	18.6	200
Ergometry & Fitness Testing	7	52.0	560	10	74.3	800	12	89.2	960
Wellness Assessment	2	55.7	600	2	62.2	670	2	75.2	810
Resource Library	1	13.9	150	1	13.9	150	1	13.9	150
Janitor Closet/Storage	1	18.6	200	1	18.6	200	1	18.6	200
Net Total		263.8	2,840		327.0	3,520		382.7	4,120
Add 30% for Circulation, RR, & Mech.		79.2	852		98.1	1,056		114.8	1,236
HAWC Gross Space		343.0	3,692		425.1	4,576		497.6	5,356
Co-located Core Areas & HAWC		3,549.4	38,207		5,050.6	54,366		5,853.7	63,011

Enhanced Fitness and HAWC Spaces (Optional)									
Lap Pool	1	464.5	5,000	1	613.1	6,600	1	761.8	8,200
Indoor Track		4 lanes			5 lanes			6 lanes	
Male DV Locker Room	1	46.5	500	1	69.7	750	1	92.6	1,000
Female DV Locker Room	1	23.2	250	1	46.5	500	1	69.7	750
HAWC Relaxation Room	1	9.3	100	1	9.3	100	1	9.3	100
HAWC Kitchen/Food Demonstration	1	46.5	500	1	46.5	500	1	46.5	500
Massage Room	1	11.1	120	2	22.3	240	3	33.4	360
Expanded Retail Area	1	9.3	100	1	13.9	150	1	18.6	200
Expanded Juice Bar	1	13.9	150	1	18.6	200	1	23.2	250
Child Play Area	1	74.3	800	1	111.5	1,200	1	148.6	1,600
Spa	1	11.1	120	1	16.7	180	1	22.3	240
Net Total		709.8	7,640		968.0	10,420		1,226.3	13,200
Add 30% for Circulation, RR, & Mech.		212.9	2,292		290.4	3,126		367.9	3,960
Total Enhanced Gross Space		922.7	9,932		1,258.4	13,546		1,594.2	17,160
Total Core, HAWC, and Enhanced		4,472.1	48,139		6,309.0	67,912		7,447.9	80,171



A. General

This chapter provides details regarding site design, building design, building systems, and other design criteria that must be carefully evaluated when planning and programming a new or renovated fitness facility at an Air Force installation.



This information is intended to establish general guidelines to assist with the design process. Specific information that expands on these overall principles will be developed for each individual project that addresses the unique conditions relative to that facility and installation.

B. Site Design

1. Facility Organization

a. Building Orientation

- Orient the building so that the main entrance faces the main streetscape and parking.
- Ensure that activity spaces have room for expansion.
- Allow an unobstructed view of the building entry.
- Provide landscape features to enhance the pedestrian access.
- Consider wind direction to minimize snow drifts or other adverse weather impacts.

b. Form and Massing

- The main entrance should be an identifiable focal point.

- Consider grouping high bay spaces together.

c. Site Development

- Use outdoor spaces as transition spaces and for extended fitness uses, such as areas for runners and bicyclists.
-

2. Access

- Proper pedestrian, vehicular, bicycle, service, handicap, and fire emergency access should be provided, keeping in mind that a fitness facility may have multiple exits but should have a single entrance with an internal control point.
 - Consider a circular or "U" shaped drive/drop-off.
-

3. Utilities and Services

When siting a facility, consider the condition, capacity, and location of utilities and their impact on future expansion.

4. Landscaping

a. Landscaping Requirements

- Landscape Requirements will conform to each installation's landscape standards and to the [USAF Landscape Design Guide](#).
- The regional climatic conditions must be considered in landscape planning.

b. Conservation Measures

- Consider using shading for energy-efficient design.
- Consider using indigenous plants, water-conservation measures and xeriscaping principles.

c. Transitional Spaces

A transitional space is a preliminary space adjacent to a destination space used by the public to gather prior to an event or meeting.

- Use outdoor spaces as transitional spaces and entrance courts.

d. Pedestrian Traffic

- Make pedestrian pathways leading to the fitness facility

obvious, and consider linking the pathways to other fitness trails.

e. Functional Uses of Landscaping

- Use landscaping to hide unsightly areas, such as trash disposal and loading areas.
- Use landscaping to provide shade along an outdoor running track.

f. Landscape Accessories

- Provide bicycle racks.
- Provide outdoor seating.
- Provide sufficient trash disposal containers that are conveniently but discreetly located.
- Provide freeze proof drinking fountains.
- Provide landscape beds for snow removal and consider snow fences in northern tier installations to prevent snow drifts from forming near doorways.
- Use potted plants to bring life into the interior of the facility. More information may be obtained in chapter 8 of the [USAF Interior Design Guides](#).

g. Irrigation

- Consider the installation of an irrigation system to support the landscaping and adjacent sports fields.

h. Signage

- Provide signage for direction to Trail Head, Jogging Path, Fitness Trail, etc.
- Display operational hours so they can be seen from the exterior.
- In the absence of MAJCOM Standards, refer to and comply with [AFPAM 32-1097 Sign Standards](#) on exterior signage.

C. Building Design

1. Architectural Character, Materials, and Finishes

a. Spatial Characteristics

- The form, color, material, massing, graphics, shapes, lighting, and finishes should express the active and energetic functions of the fitness facility.

b. Exterior Appearance

- Architectural compatibility with the MAJCOM and Installations' Design Standards and [USAF Base Architectural Compatibility Guide](#) will influence the design of the exterior appearance of the building.
- The function of the building, as a fitness facility, should be apparent in the appearance of the building.
- Effective signage should clearly identify the facility as a fitness facility.
- The main entrance should be clearly visible from the primary approach to the facility.
- The massing of the building should relate to the surrounding structures. The high bay areas should not be too dominant.
- Program requirements and site restrictions may mandate the need for a multistory facility.

c. Internal Spaces

- The interior of the facility should be open and flexible.
- Avoid creating a commercial office environment when designing the interior décor.
- Consider a "main-street" circulation system which creates a dynamic flow of movement through the facility.
- Create visual connections between the entrance and activity spaces, thereby creating a "visual menu" for users.
- Allow natural light into the facility, keeping in mind force protection and energy conservation issues.
- Directional signage should be clear and visible.
- Design for flexibility and expansion.
- Make spaces multifunctional.
- Refer to MAJCOM and Installation Guidance for applicable interior design criteria.
- Refer to [USAF Interior Design Guide](#) for additional information.

2. Sustainable Design

Sustainability in design is an outgrowth of the responsible stewardship of our natural, human, and financial resources. This will require each facility:

- To use resources efficiently and to minimize raw material resource consumption during construction, as well as

throughout the life of the facility. These resources include water, land, and materials.

- To maximize resource reuse and maintain financial stewardship.
- To move away from the use of fossil fuels and towards the use of renewable energy sources.
- To create a healthy working environment for all who use the facility.
- To build facilities of long-term value.
- To protect and, where appropriate, to restore the natural environment.

These overall goals are further explained in the [USAF Environmentally Responsible Facilities Guide](#).

These goals can only be achieved through a change in the approach to project planning, design, and construction. Examples of ways to effect this change include:

- Reducing the number of materials used on a project, such as the use of stained concrete floors instead of other flooring materials.
- Using locally available natural materials with all materials selected on the basis of their recyclability, non-toxicity and overall environmental sensibility.
- Using indirect lighting, high ceilings, natural day-lighting, and open vistas which will enhance productivity.
- Reducing surface water runoff and providing filtration.
- Reducing habitat disturbance when considering the siting of the facility.
- Considering building rehabilitation rather than new construction and the demolition of an existing facility.

3. Flexibility and Expansion Potential

- Accommodate peak demand by properly sizing the facility and organizing the functions.
- Provide enough storage within each multipurpose room to store equipment for alternative functions.
- Use materials and finishes that accommodate many different uses. Try not to use materials that are specific to one function as a permanent application, except where the specific activity requires special flooring, such as

gymnasiums and aerobics rooms where flooring must meet [DIN](#) (Deutsches Institute fur Normung) standards.

4. Supervision and Security/Access and Egress

The design of the control point should allow for ID checks of all that enter. Electronic devices should be considered to expedite the check-in progress.

a. Control Point

- A single control point should be used for checking users to the facility.
- The central control point should ideally have both direct visual contact and an electronic monitoring system to adequately observe all activity spaces.
- The central control point should have a view of most of the activity spaces.
- Provide electronic monitoring systems to allow all activity areas to be observed at the control point.

b. Access

- Access into the facility should be controlled through a single main entry, and users should pass by a central control point or check-in desk.
- Provide proper outside access to mechanical equipment rooms by maintenance personnel. Service drives should be paved.
- Provide a service entrance for receiving exercise equipment and other large items.

c. Egress

- Egress points out of direct view of the control point should have electronic alarms and be clearly labeled as such.
- Multiple egress points to outdoor activities are allowed, but return access should be funneled into the main access point.

5. Internal Circulation

- Locate the activity spaces that receive the greatest number of users near the main entrance.
- Lockers should be directly accessible to and from the pool, if

applicable.

- Minimize the number of corridors where practical.
-

D. Building Systems

1. Structural

- Use a structural system that allows for flexibility and expansion.
 - Minimize the number of load bearing walls to allow for reconfiguration.
 - Use a structural system that allows for large, column free areas.
 - Provide a structure that can accommodate future vertical expansion at facilities that have site constraints.
-

2. Heating, Ventilation, and Air Conditioning (HVAC)

- Base the HVAC system's total capacity by following the design conditions criteria outlined in AFH 32-1163(I) Engineering Weather Data.
- As a general guideline for heating and cooling system sizing, maintain the inside design temperatures of occupied spaces in the range of 72 degrees F for heating and 78 degrees F for cooling. Refer to ASHRAE Standard 55a-1995 for guidance.
- Provide an adequate amount of conditioned outside air to satisfy the more stringent of either that required by ASHRAE Standard 62-89, Ventilation for Acceptable Indoor Air Quality or that required to maintain the facility under a slight positive pressure with respect to the outdoors while the facility exhaust systems are operating.
- Filter supply air using filters having an efficiency of at least 25 percent when tested in accordance with ASHRAE Standard 52.
- Design HVAC systems in accordance with the principles and practices described in the ASHRAE Handbook of Fundamentals.
- Design mechanical systems and select equipment that are energy efficiency and in compliance with IO CFR 4345 Performance Standard for New Federal Buildings.
- Design systems for the lowest life cycle costs. Consider measures to take advantage of favorable climatic conditions as a means of reducing energy consumption.
- Isolate rotating mechanical equipment from the building structure by

providing vibration isolators designed for an efficiency of at least 98 percent. To ensure proper isolation, consider internal vibration isolation furnished with the equipment, if available from the equipment manufacturers.

- Independently zone mechanical systems based on functional area and occupancy schedules. Provide dedicated systems for areas requiring containment, such as a room housing a pool.
 - Select systems that are simple to operate, easy to maintain and common to the installation. Locate equipment where it is easily accessible by maintenance staff without the need for ladders or other portable means.
 - Provide electronic programmable controls capable of adjustable occupancy scheduling, temperature setback, duty cycling and other energy saving routines. Controls shall be capable of remote monitoring.
 - Consider the minimization of utility runs when locating the HVAC equipment.
-

3. Plumbing

- Provide plumbing systems to meet requirements of the Uniform Plumbing Code (UPC).
 - Provide a perimeter trench drain in the men's shower.
 - Provide floor drains in the drying area.
 - Provide a hose bib and floor drain in each wet area for wash down.
 - Locate irrigation controls in the maintenance area.
 - Provide exterior access to the pool pump room.
 - Provide recirculating hot water loop systems for showers.
-

4. Electrical

a. Power

- Use electrical systems and equipment that are energy efficient, reliable, flexible, and easy to maintain.
- Provide electrical systems that will meet the requirements of building codes, specifically the latest edition of the National Electrical Code. In addition, comply with the applicable Air Force standards and guidelines.
- Size electrical systems to allow for maximum operating efficiency of the electrical systems and for adequate future expansion capabilities.
- Provide dedicated electrical spaces to house all major electrical equipment. Locate the electrical spaces so that electrical homeruns do

not exceed 150 feet.

- Provide power outlets throughout the building to serve all equipment and to allow for the future reconfiguration of equipment layouts.
- Provide a grid of floor-mounted power outlets in open areas to allow for flexibility in locating equipment. Consider a grid of overhead drops only if it can be integrated with the architectural systems.
- Provide power outlets and television cable outlets at 7'-0" above finished floors where wall-mounted TV sets are to be placed.
- Consider the special electrical requirements of specific exercise equipment, such as dedicated 220 volt service for treadmills.
- Minimize utility runs.

b. Lighting

- Determine lighting levels in accordance with the Air Force standards and guidelines. In case these standards and guidelines do not cover all the types of spaces in the building, then lighting levels shall be determined in accordance with the Illuminating Engineering Society's Illuminance Selection Procedure. This procedure will then be used to establish target maintained illumination levels. Specific influences of glare, task complexity, surface reflectance characteristics, and brightness of the source shall be evaluated during the different design phases, in order to establish the type, quantity, and location of light fixtures.
 - Minimize, if not totally eliminate, the use of incandescent down lights. Utilize energy-efficient lamps with high power factor ballasts, which are CBC (Certified Ballast Manufacturers) certified and have low harmonic characteristics.
 - Use energy-efficient lamps and electronic ballasts throughout the building. Minimize the number of different types of lamps to be used throughout the facility.
 - In the gymnasium area, use HID (High Intensity Discharge) type, metal halide light fixtures with lenses and guards to protect the light fixtures.
 - Lights in each space shall be locally controlled. In addition, consider the use of a lighting control system where lights throughout the building can be controlled from the Control Point or, if provided, from the building management system.
 - Provide the sufficient horizontal and vertical chases for rewiring of equipment.
 - Refer to [AFMAN 32-11083 Electrical Interior Facilities](#) for additional information.
 - Refer to the [Table 4 Lighting Schedule](#) for additional information.
-

5. Communications

- Provide telecommunications outlets (telephone and data) throughout the building.
 - Provide for an internal Public Address (PA) system throughout.
 - Provide jacks to exercise equipment or infrared transmitters for audio output from televisions.
 - Allow for the technical requirements for access card systems and closed-circuit monitoring in appropriate spaces, such as the children's play area.
 - Allow for the technical requirements for audio/visual systems in the appropriate rooms.
 - Control point and administration area should be connected to the installation's central computer network.
 - Consider the need for connecting exercise machines to the building and/or the installation computer network.
 - Provide for computer LAN (local area network) data lines that allow for flexibility in the use of areas.
-

6. Fire Protection/Life Safety

Construct the facility to meet the requirements of Military Handbook (MIL-HDBK) 1008. This handbook contains information on all fire protection and life safety feature requirements, construction requirements, detection and suppression system requirements and egress components.

7. Acoustics

- Use finishes that limit unwanted noise within the building.
 - Consider using nonrectilinear room configurations to limit reverberation.
 - Refer to [AFJMAN 32-1090 Noise and Vibration Control](#).
-

8. Force Protection

- Fitness facilities are a potential target of terrorist attack. A "threat assessment" is therefore required to prepare proper force protection measures. An assessment applicable to the installation's fitness facility

should be completed prior to the start of design, whether it is a renovation project or new construction.

- The [USAF Installation Force Protection Guide](#) should also be used when planning, programming, and designing facilities.
 - Fitness facilities have a higher pedestrian customer base than other types of military facilities.
 - The provision of vehicular access close to the building, such as drop off and service entrances, must be weighed against the potential for terrorist attack at that facility/base.
-

9. Finishes

- Finishes should be appropriate to each room use.
 - Finishes should allow for flexibility of uses.
 - Materials should be moisture resistant.
 - Materials should be low maintenance.
 - High-performance, durable finishes should be considered where appropriate to reduce long-term maintenance and replacement costs.
 - Refer to the [Table 5: Room Finish Schedule](#) for additional information.
-

10. Sport Flooring

The use of proper sport flooring will help ensure the highest possible athletic performance, injury prevention, and durability. [DIN](#) (Deutsches Institute fur Normung) standards have identified six areas of quality control and performance tests to assess different floor systems.

a. Force Reduction or Shock Absorption

This is a floor's ability to absorb the shock of an impact. A solid concrete slab is used as a reference point. The minimum allowable score for a sports floor according to DIN standards is a 53% force reduction. A higher force reduction value is desired for aerobic exercise floors.

b. Standard Deformation or Resilience

This is a floor's ability to deflect, or "give," when impacted by the athlete. The minimum allowable score for a sports floor according to DIN standards is 2.3 mm (0.09").

c. Deformation Control

This is a floor's ability to control the area spread of the deformation as outlined in the previous test. The maximum

allowable score for a sports floor according to DIN standards is 15%. This means that a maximum of 15% of an impact's deformation can be spread to a point 500 mm (19.69") from the point of impact.

d. Ball Rebound

This is a floor's ability to provide a suitable surface for ball bounce. The minimum allowable score for a sports floor according to DIN standards is 90%. This means that a sports floor must produce a bounce rebound height of at least 90% of that produced by a concrete floor.

e. Behavior Under a Rolling Load

This is a floor's ability to withstand the weight of a rolling load, such as bleachers or other portable equipment. According to DIN standards, a sports floor must be able to withstand trauma caused by a rolling cart carrying 1500 Kg (3307 lbs.), without damage. This weighted cart is rolled over a surface 300 times. After the test, the sports floor is disassembled to examine the condition of the components. A floor passes the test only if none of its components have been damaged.

f. Sliding Behavior

This is a floor's ability to control the sliding of the athletes who are playing on the floor. In short, a DIN certified floor must not allow excessive slide that would cause an athlete to lose control and fall, but will allow sliding when severe force is exerted.

Energy Management of Impact Forces

All sports flooring systems can be categorized into three groups depending on the way they respond to athletic impact forces: area elastic, point elastic, and combination. Each group has the ability to absorb the energy of impact, and are considered far superior to the safety characteristics of a completely rigid floor. The three groups differ in the way in which energy is managed after impact. The characteristics of the three types of floor are as follows:

Point Elastic Floors

- "Soft," usually synthetic surfaces.
- Laid in sheets or poured continuously.
- Virtually no impact energy return.
- Known for their high frictional coefficients.
- Low in maintenance and extremely durable.

Area Elastic Floors

- "Hard" athletic surface, usually hardwood.

- Returns some of the impact energy to the athlete.
- Preferred surface for court and aerobic exercise spaces.

Combination Surface

- Durable, multi-use surface.
- A synthesis of point and elastic surface.
- Less expensive than a pure hardwood surface.

Table 3: Sports Flooring Performance Characteristics

Properties	Point Elastic	Area Elastic	Combination
Cushioning	Good	Fair	Fair-Good
Energy Return	Poor	Good	Fair
Frictional Coefficient	High	Low	High
Durable	High	Good	Good
Maintenance	Low	Medium	Low

Floor Type	Point Elastic	Area Elastic	Combination
Gymnasium	Unsuitable	Recommended	Acceptable
Group Exercise	Unsuitable	Recommended	Acceptable
Fitness Equipment Spaces	Recommended	Unsuitable	Unsuitable
Racquetball Courts	Unsuitable	Recommended	Unsuitable
Indoor Track	Acceptable	Unsuitable	Acceptable

April 1999

Table 4: Lighting Schedule

ROOM DESCRIPTION	Foot Candles	Maintenance Factor	Reflectance	Source Type	Power Density
Core Areas					
Lobby	15	75%	10-50-80	F	3
Public Restrooms	20	75%	10-50-80	F	1
Administration					
Office & Workroom	50	75%	10-50-80	F	2
Conference Room	30	75%	10-50-80	F	2
Support					
Locker Rooms	20	75%	10-50-80	F	2
Gymnasium	50	75%	10-50-80	F	2
Group Exercise	50	75%	10-50-80	H/F	3
Fitness Equipment Spaces	50	75%	10-50-80	F/I	2
Racquetball Courts	50	75%	10-50-80	H/F	3
HAWC					
Reception/Lobby	15	75%	10-50-80	F	3
Office Space & Classroom	50	75%	10-50-80	F	2
Computer Resource Lab	50	75%	10-50-80	F	2
Ergometry & Fitness Testing	50	75%	10-50-80	F	2
Wellness Assessment	50	75%	10-50-80	F	2
Resource Library	50	75%	10-50-80	F/I	2.5
Janitor Closet/Storage	15	75%	10-50-80	F	1
Enhanced Areas					
Lap Pool	30	75%	10-50-80	H/F	2
Indoor Track	30	75%	10-50-80	F	2
DV Locker Rooms	20	75%	10-50-80	F	1.5
HAWC Kitchen/Food Demonstration	30	75%	10-50-80	F/I	2
HAWC Relaxation Room	15	75%	10-50-80	I	1.5
Massage Room	30	75%	10-50-80	F/I	2
Expanded Retail Area	30	75%	10-50-80	F/I	2
Expanded Juice Bar	30	75%	10-50-80	F/I	2
Child Play Area	50	75%	10-50-80	F/I	2
Spa	20	75%	10-50-80	F	1.5

F = Fluorescent, H = HID Type (Metal Halide Fixture), I = Incandescent

Note: Indented areas are within the above "Core Area".

Table 5: Room Finish Schedule

ROOM DESCRIPTION	FLOORING				WALLS			CEILING		
	Carpet	Ceramic Tile	Vinyl Tile	Sports Flooring	Ceramic Tile Wainscot	Wallboard	Non Specific	Open to Structure	Acoustical Lay-In	Ceiling Clearance
Core Fitness Areas (Mandatory)										
Lobby	■		■			■		■	■	3050-3660 mm (10'-12')
Public Restrooms		■			■				■	2440-3050 mm (8'-10')
Administration	■					■			■	2440-3050 mm (8'-10')
Support	■		■	■		■			■	2440-3050 mm (8'-10')
Locker Rooms		■			■				■	3050-3660 mm (10'-12')
Gymnasium				■			■	■		7620 mm (25')
Group Exercise				■			■	■		3050-3660 mm (10'-12')
Fitness Equipment Spaces				■			■	■		3050-3660 mm (10'-12')
Racquetball Courts				■		■		■		5940 mm (19' - 6")
Core HAWC Areas (Mandatory)										
Reception/Lobby	■		■			■			■	3050-3660 mm (10'-12')
Office Space & Classroom	■		■			■			■	2440-3050 mm (8'-10')
Computer Resource Lab	■		■			■			■	2440-3050 mm (8'-10')
Ergometry & Fitness Testing	■		■			■			■	2440-3050 mm (8'-10')
Wellness Assessment	■		■			■			■	2440-3050 mm (8'-10')
Resource Library	■		■			■			■	2440-3050 mm (8'-10')
Janitor Closet/Storage			■			■		■		2440-3050 mm (8'-10')
Enhanced Areas (Optional)										
Lap Pool		■			■			■		3050-3660 mm (10'-12')
Indoor Track				■			■	■		3050-3660 mm (10'-12')
DV Locker Rooms		■			■			■	■	2440-3050 mm (8'-10')
HAWC Kitchen/Food Demonstration			■			■			■	2440-3050 mm (8'-10')
HAWC Relaxation Room			■			■			■	2440-3050 mm (8'-10')
Massage Room	■		■			■			■	2440-3050 mm (8'-10')
Expanded Retail Area			■			■		■	■	3050-3660 mm (10'-12')
Expanded Juice Bar			■			■		■	■	3050-3660 mm (10'-12')
Child Play Area	■		■			■			■	2440-3050 mm (8'-10')
Spa		■			■			■		3050-3660 mm (10'-12')

Note: Indented areas are within the above "Core Area".



A. Core Areas

The following Functional Area and Space Guidelines provide detailed design requirements for each functional space in a typical facility. This information can be used to aid in the preparation of preliminary and working drawings.

The following tables must be referenced for each core and enhanced area. They provide details specific to the individual areas.

Tables
1. Table 1: Base Classification
2. Table 2: Minimum Space Allocation Requirements
3. Table 3: Sports Flooring Performance Characteristics Table
4. Table 4: Lighting Schedule
5. Table 5: Room Finish Schedule
6. Table 6: Related Air Force Documents
7. Table 7: Related Reference Documents

1. Lobby

a. Vestibule

Special Requirements:

- Mudscraper or proper wet transition area.
- Air lock entry is recommended for the conservation of energy, especially in extreme weather climates.

- Provide a grated snow-trap for northern tier bases.

b. Control Point/Reception

Special Requirements:

- Provide close access to the administrative office area to reduce staff required to operate the facility.
- Consider access devices such as an electronic card reader and turnstiles, etc. to permit an express lane entry as well as personal contact with the receptionist.
- Provide computer, data connection, printer, public address system, and security monitor (if necessary to maintain visual connection with all spaces).
- Provide for towel and equipment checkout.

c. Seating Area

- Proportional to the size of the facility.

d. Display Area

Furnishings and Equipment:

- Trophy case.
- Health kiosk for promotional brochures or information.
- Event schedule board.
- Fitness center operational information board.
- Trail maps.
- Facility orientation plan.
- Computerized interactive fitness station (or simply a card file) to store workout routines and schedules used by the regular patrons of the facility.
- Automatic blood pressure measuring machine.
- Staff Board.

e. Retail

- Provide retail service at the checkout counter.
- At a minimum, provide for beverage sales at the checkout counter.
- Vending machines can be used as an alternative to over-the-counter beverage sales in small installations.

f. Public Telephones

- Provide public telephones in the lobby and in the HAWC.

g. Public Restrooms

- Provide public restrooms separate from locker restrooms to

separate public usage from team locker room usage during a game break, half-time, etc.

h. Public Drinking Fountains

- Provide drinking fountains as indicated in the room by room description.
-

2. Administration

This area should be easily visible to customers and be near the lobby.

a. Facility Manager's Office

- This should be an individual office with seating for visitors.
- Provide communications and data connections.
- Provide space for computer and printer.
- Provide standard finish furniture, such as plastic laminate or cabinet grade plywood, instead of luxury furniture with genuine wood construction and leather upholstery.
- Consider providing a window with a view of the lobby area.
- Should be securable.
- Provide visual access to the staff workroom.

b. Program Directors' Office

- This should be a shared office for two to three people.
- Provide communications and data connections.
- Provide for a computer and shared printer.
- Provide standard finish furniture.
- Provide a shared whiteboard.
- Consider providing a window with a view of the lobby area.
- Should be securable.
- Provide visual access to the staff workroom.

c. Workroom

- Provide a break area with microwave, coffeemaker, and refrigerator.
- Provide communications and data connections.
- Provide a work table.
- Provide a whiteboard.
- Provide a copy machine and fax.
- Provide for files.

- Should be securable.

d. NCOIC/Operations Office

- Provide communications and data connections.
- Provide standard finish furniture, such as plastic laminate or cabinet grade plywood instead of luxury furniture with genuine wood construction and leather upholstery.
- Provide for a computer and printer.
- Should be securable.
- Provide visual access to the control point.

e. Conference/Classroom

- Provide a separate conference/classroom only when the HAWC is not co-located.
 - Provide seating for 25 staff members around a conference table.
 - Provide a white HAWC board.
 - Provide communications and data connections.
 - Provide standard finish furniture, such as plastic laminate or cabinet grade plywood, instead of luxury furniture with genuine wood construction and leather upholstery.
 - Provide lighting controls.
-

3. Support

a. Storage

- Should be securable.
- Provide for soap and paper storage.
- Provide access to laundry and equipment repair areas.

b. Janitorial

- Provide a floor mount mop sink with hose connection.
- Provide storage for cleaning supplies including a janitor cart.
- Provide storage for mops and brooms.
- Should be securable and ventilated.

c. Laundry

- Provide either oversized or double doors for equipment delivery.
- Provide space for commercial laundry equipment.
- Provide proper ventilation and exhaust for equipment.
- Provide bin storage for soiled and cleaned linens.

- Provide storage for cleaning materials.
- Provide a folding table.
- Provide access to storage room.

d. Equipment Repair

- Provide access to the storage room.
- Provide shelving and clothes racks.
- Provide for parts and equipment storage.
- Provide a workbench with storage space for tools.
- Provide task lighting and electrical outlets for workbench.
- Provide double-door lockable entry.
- Provide a new equipment receiving and assembly area.
- Provide access to storage room.

e. Service Entrance

- Provide double-door entry.
- Provide paved access to service entrance for light delivery trucks. This should not require a loading dock.
- Provide direct access from service entrance to main corridor.
- Locate service entrance near main dumpster.
- Should have side or rear building entry.

4. Locker Rooms

a. Dressing Room

- Design to ensure proper air exchange to ventilate wet areas.
- Provide space throughout locker room for shelves and hooks for coats and hats.
- Provide vanities with and without lavatories. Both should have mirrors, sufficient task lighting, and sufficient electrical outlets.
- Provide wall mount hair dryers at vanities.
- Provide a scale.
- Provide proper drainage (i.e., floor drains).
- Provide a telephone.

b. Lockers

- Mount lockers at a level above floor which provides reachable operating hardware.
- Consider placing benches adjacent to lockers rather than in an

island between lockers to maximize space and allow access to persons with disabilities.

- Use well-ventilated and moisture-resistant lockers; consider louvered lockers.
- Provide security latch on each locker for use with personal locks.
- Allow 2030 mm (6'-8") minimum between face of lockers.
- Lockers should be a minimum of 300 mm (12") wide to accommodate boots.
- Use a combination of full-height, half-height, and 300 x 300 mm (12" x 12") lockers. Provide a higher percentage of full-height lockers in northern tier installations for parka storage.
- Eliminate storage areas above lockers. Consider using sloped tops.

c. Showers

- Provide gang showers with some private showers for men.
- Do not use central shower poles.
- Provide all private shower enclosures for women.
- Provide attached changing areas for private showers.
- Provide soap dispensers in showers.
- Provide proper drainage (i.e., floor drains and/or perimeter trench drains).
- Provide natural lighting whenever possible and waterproof lighting fixtures in all showers.
- Do not allow direct views into the shower room areas.
- Use dark-colored grout in the shower floor tiling.

d. Restrooms

- Do not locate restroom stalls directly within the locker room area.
- Provide direct public access if separate public restrooms are not available.

e. Sauna Room

- Provide for a clock, securable thermostat controls and an alarm for duress.
- Provide seating/reclining area for patrons.
- Provide natural ventilation that allows air to flow freely from the inlet and outlet, located on opposite walls at approximately the same height. Provide manual louvers to adjust the flow of air from the inside of the sauna, and consider using outside air to supply the sauna.

- Provide convection heater, stone bed, and heat enclosure.
- Provide heat-sensing device 300 mm (12") below the ceiling.
- Provide insulated interior paneling, tongue and groove wood paneling of white or western cedar, and duckboard flooring system.

f. Materials

- Provide flooring materials with an integral slip-resistant surface throughout; consider large tile flooring with dark grout in the dressing room and smaller tile flooring in the showers.
- Use moisture-resistant finishes throughout. Consider rustproof materials for the lockers.

g. Flexibility and Expansion

- Consider using a linear configuration to allow for expansion.
- Consider using strategically located "soft storage space" adjacent to locker rooms to allow for future expansion.
- Provide public address system and communications connections in all occupied spaces with an emergency call/alarm in locker rooms.
- Consider including a family changing room for facilities that are open to use by families. This could be an additional room adjacent to the men's and women's locker rooms that would provide privacy and restroom facilities for parents with young children.

5. Gymnasium

- Provide removeable, retractable, roll-up basketball goals and backboards to maximize space.
- Plan for a minimum of one [ACSM standard](#) size basketball court, with more courts provided at the medium and large installations.
- Provide floor-mount sockets for volleyball and badminton nets.
- Incorporate natural light as much as is practical, being careful to avoid direct sunlight that can interfere with players' and spectators' vision.
- Use telescoping bleachers to maximize the flexibility of the space and to allow sideline space for gymnasium events.
- Provide for accessible seating.
- Provide an alcove for drinking fountains away from the hardwood flooring, or conveniently locate drinking fountains

outside the gymnasium.

- Consider providing a rollout protective flooring cover for use during special events. Provide proper storage space that is conveniently located.
- Provide crash padding where appropriate; these pads can be removable.
- Provide at least one double-door entry for equipment.
- Incorporate a divider curtain to increase flexibility.
- Provide sufficient equipment storage for folding chairs, nets and goals, boxing ring, gymnastic equipment, etc.
- Refer to the Ramsey/Sleeper Architectural Graphic Standards and the [ACSM Standards for Basketball Court](#) for detailed information on gymnasium design.

a. Utility Support

- Provide for public address and score board control outlets for score keeper.
- Provide proper air movement.
- Provide natural lighting where appropriate.
- Provide electronic scoreboard for competitive sports.

b. Materials

- Refer to [Section D.10 Sport Flooring](#) for additional information.

6. Group Exercise

The size and number of exercise rooms will vary with the size of each installation.

- Design the group exercise rooms to allow for flexibility in use.
- Provide a method of fastening padding on walls for use during combative sports and provide storage space for the mats.
- Provide a continuous stretching bar on at least one wall.
- Provide an alcove for drinking fountains away from the hardwood flooring, or conveniently locate drinking fountains outside the group exercise room.
- Provide securable storage for mats, aerobic equipment, etc.
- Provide acoustical separation from the rest of the facility. The room should be able to be closed off.
- Provide some visual connection to the rest of the facility.
- Provide for a waiting area outside the group exercise room. (This

could be a widened corridor.)

- Make provisions for future uses. Allow for increased numbers of power outlets, data lines, and other technical requirements.
- Consider the needs of activities such as rock climbing and combative sports.

a. Utility Support

- Provide ceiling-hung TV monitors.
- Provide natural lighting where appropriate.
- Provide a controlled lighting system.
- Provide for a sound system that is contained in a securable area, and has permanently mounted speakers. The controls should be easily accessible to the instructor.

b. Materials

- Provide for boxing equipment such as punching bags and speed bags.
- Provide mirrors on at least two walls at a minimum of 450 mm (18") above the floor.
- Finishes in the exercise rooms should allow for multipurpose use.
- Provide a floor surface that meets impact IAW DIN Standards.
- Refer to [Section D.10 Sport Flooring](#) section for more information.

7. Fitness Equipment Spaces

- Refer to [AF Services Fitness and Sports Golden Eagle Standards](#) for information regarding AF equipment standards.
- Size room to efficiently layout equipment. Communication with user and equipment design specialists is imperative when designing this room.
- Allow an average of 4.65 square meters (50 square feet) per equipment station. This includes circulation paths around each station. This guideline does not include the circulation needs for egress and internal circulation.
- Provide an alcove for drinking fountains within the fitness equipment rooms.
- Provide towel dispensers and spray disinfectant throughout cardio and weight training areas.
- Provide sufficient trash receptacles.
- Provide adjacent storage for replacement equipment, mats, etc.
- Provide stretching areas as an integral part of individual exercise rooms. Use these spaces as transition spaces for warm up and cool down.

- Separate machine weights, free weights, and cardiovascular equipment, while maintaining an open atmosphere. This can be achieved through the use of large planters, moveable mirrors, etc.

a. Utility Support

- Consider FM broadcast of video monitors.
- Provide sufficient power, data, and communications outlets.
- Provide 220-volt flush-floor outlets for commercial-grade fitness equipment.
- Provide flush-floor outlets adjacent to each cardiac exercise machine to minimize extension cord length.
- Provide cable, power outlets, and TV monitor mounts at proper viewing height from cardiac exercise machines.
- Provide as much natural lighting as possible. Use general lighting throughout to provide for flexibility.

b. Materials

- Provide mirrors on at least two walls at a minimum of 450 mm (18") above the floor.
 - Use permanently adhered impact flooring with a nonporous, high-density rubber/elastic surface. Composite products such as recycled rubber may be used; however, the top layer should be virgin (unrecycled) material chemically bonded to the sublayers. Avoid the use of interlocking impact flooring tiles.
 - Provide sound-absorbing materials to reduce echo.
-

8. Racquetball Courts

- The standard size of a racquetball/handball court is 6100 mm wide by 12200 mm long and 6100 mm high (20 LF wide by 40 LF long and 20 LF high). Refer to the Ramsey/Sleeper Architectural Graphic Standards and the [ACSM standards](#) for reference material regarding Racquetball Courts.
- Front and side walls should be made of hard plaster, concrete, laminated composition panels, or nonsplintering durable wood.
- Provide a shatter-proof glass back wall/door for viewing and officiating.
- Provide stretching areas outside each court. Use these spaces as transition spaces for warm up and cool down.
- Provide mounting sockets and netting for wally-ball games.
- Provide wallet lock-boxes in one sidewall of each court.
- Consider providing one court with a movable front or rear wall to allow one racquetball court to be converted into a squash court.

a. Utility Support

- Provide appropriate temperature, humidity, and air circulation levels.

b. Materials

- Refer to the [Sport Flooring](#) section for additional information.
-

B. Health and Wellness Center

1. Reception/Waiting

- Provide seating for eight people.
 - Provide space for display materials.
 - Provide space for the administrative tech's office.
 - Provide communications and data connections.
-

2. Office Space

- At small facilities: three enclosed offices with workstations, two offices will be private.
 - At medium/large facilities, there are four enclosed offices with workstations. Three of the offices are private.
 - Provide communications and data connections.
-

3. Classroom

- This room needs to be shared equally by the Fitness and HAWC staff for meetings, training, etc.
 - Provide seating for 50 people in a classroom arrangement.
 - Provide a moveable partition to divide the room into two spaces.
 - Provide audiovisual equipment, communications, and data lines.
 - Provide controllable lighting.
 - Provide a white/tack board.
 - Design the room to be enclosed and securable.
-

4. Computer Resource Lab

- Provide for technical requirements.
- Provide communication outlets, data lines, and power outlets.
- Provide task lighting.

- Design the room to be enclosed and securable.
-

5. Ergometry and Fitness Testing

- This should be an enclosed room with 2440 x 3050 mm (8'-0" x 10'-0") testing cubicles; provide one cubicle per 800 active duty assigned personnel.
 - Provide for a testing computer with data connection.
 - Provide for a testing bike.
 - Individually zone room for HVAC.
 - Place room adjacent to the wellness assessment room.
 - Provide three cubicles 2440 x 3050 mm (8'-0" x 10'-0") at small bases, four cubicles at large bases for bodyfat assessment in support of the weight management program.
-

6. Wellness Assessment Rooms

- Provide for testing equipment.
 - Provide for a testing computer with data connection.
 - Individually zone room for HVAC.
 - Place room adjacent to wellness ergometry testing.
-

7. Resource Library

- Provide for storage of educational materials.
 - Provide for reading tables with task lighting.
 - Provide communication outlets, data lines, and power outlets.
-

8. Janitor Closet/Storage

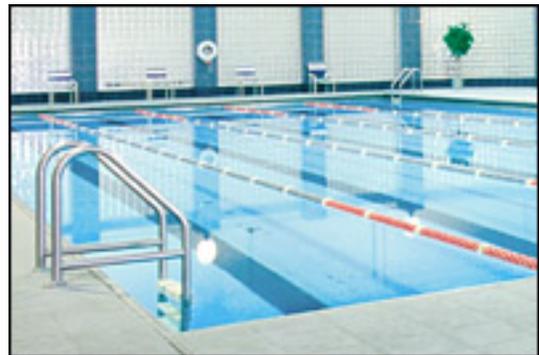
- Provide floor mount utility sink with hose connection.
 - Provide storage for cleaning supplies and janitor cart.
 - Provide storage for mops and brooms.
 - Should be securable and ventilated.
 - Provide storage for equipment.
-

C. Enhanced Areas

This section provides information on enhanced areas that may be included in addition to the mandatory core areas of a fitness facility. These enhanced spaces may be included at the discretion of each installation commander, provided that all core space requirements have been met. These areas will be different at every installation depending on the unique requirements of each base. The enhanced areas at each facility should be integrated into the master plan to take advantage of design opportunities. For example, a climbing wall could be used to create a dramatic focal point, or a climbing machine could be used to meet this need if space is limited.

1. Lap Pool

- Design pools to meet competition requirements with a minimum of six lanes 13720 mm wide by 22860 mm long (45 LF wide by 75 LF long).
- The pool should be deep enough for water aerobics.
- There should be no diving areas.
- Provide as much natural lighting as possible.
- Consider incorporating coiling overhead doors to allow the pool area to be opened up to the outside.
- Materials should be slip and moisture resistant.
- Provide moveable starting block mounts and lane markers.
- Provide adequate storage for floats, flippers, life vests, lane markers, etc. in securable storage areas.
- Provide readily accessible storage for skimmers and other pool equipment within pool maintenance area.
- Provide for life guard stations.
- Consider the need for handicapped access to the pool.
- Should be securable.
- Should be directly accessible from the locker rooms and a shower area should be provided as a transition.
- Provide a spectator area with a separate entrance, if required.



a. Utility Support

- Provide connections for time clock, public address system and scorer's table.
- Provide proper humidity control.
- Provide adequate mechanical equipment space.

2. Indoor Track

- The indoor track should not interfere with building circulation.
 - Consider locating the track on the second floor or an upper portion of a high-bay space.
 - The track should be a minimum of 146.3 m (1/11 of a mile) in length (note: identify at what distance from the inside radius) and have a minimum width of 3660 mm (12 ft.). The turns should have a minimum inside radius of 2440 mm (8ft.) and a minimum outside radius of 6100 mm (20 ft.). The metric unit equivalent for 1/11 of a mile must be an accurate soft conversion due to runners timing themselves based on number of laps, and the reference point must be consistent.
 - Provide a minimum of four lanes with each lane being 1222 mm (4 ft.) wide.
 - Provide walking and running lanes.
 - Provide a digital clock.
 - Provide a resilient running surface, such as rubber. Consider using banked curves. The height of banked curves on an indoor track should be 25 mm per meter (1" per foot) of track width.
 - Provide a stretching, warm up, and cool down area with drinking fountains.
 - Use natural lighting and views to the outside to break up the monotony of running an enclosed track.
-

3. Distinguished Visitors (DV) Locker Rooms

Provide male and female DV locker rooms independent from the core locker rooms.

- Refer to [Chapter 4A.4](#) for shower, locker and dressing room information.
 - Should be adjacent to but visually separate from group locker rooms.
 - Provide private showers, dressing stalls, vanity countertop, lavatories, and toilet area.
-

4. HAWC Relaxation Room

- Provide a 110-volt electrical outlet.
 - Provide controlled lighting.
 - Provide acoustic treatment to reduce sound transmission into the room.
 - Provide comfortable lounge seating for 4 to 6 patrons.
-

5. HAWC Kitchen/Food Demonstration Room

- Provide a kitchen demonstration island with a range, vegetable sink and countertop workspace.
 - Provide countertop workspace with a double sink and upper/lower closed storage cabinets.
 - Provide a refrigerator/freezer, dishwasher, double oven, microwave, and miscellaneous equipment to demonstrate new methods of food preparation.
 - Provide 110-volt and 220-volt electrical outlets for all appliances.
-

6. Massage Room

- Provide power outlets and controlled lighting.
 - Provide massage tables, chairs, and equipment.
 - Provide a securable storage cabinet for supplies and equipment.
 - Provide access to water, such as an adjacent restroom or a small wash sink.
 - Provide dedicated HVAC controls.
-

7. Expanded Retail Area

- Provide for lighted glass display cases with counters.
 - Provide for free-standing hanging clothes display racks and slatted wall display systems for various merchandise.
 - Provide a sales counter with computer/cash register, phone and credit card authorizer.
 - Provide a stock storage room with shelves and open space.
 - Provide indirect access to the loading area and double doors opening into the stock room for wide deliveries.
-

8. Expanded Juice Bar

- Provide controlled lighting, power outlets, communication lines and data lines for cash registers
 - Provide plumbing connections and a double sink, dishwasher, and ice machine.
 - Provide countertop work space.
 - Provide for refrigeration appliances and refrigerated display cabinets.
-

9. Child Play Area

- Must meet the requirements for short-term care as outlined in [AFI 34-701](#).
 - Provide table and chair seating for children.
 - Provide storage cabinet for children's games and toys.
 - Provide lighting controls, plumbing/lavatory, soap dispenser and towel dispenser.
 - Consider the need or potential need for a TV camera to monitor this area. Supply adequate power and communication lines as required.
 - Refer to [ACSM](#) Guidelines for detailed information regarding the design of a Child Play Area.
-

10. Spa

- Allow access to the spa area through the shower area and place it adjacent to the steam room.
 - Provide a water-resistant surface for floors, walls, and ceiling.
 - Provide nonslip flooring surface.
 - Provide equipment room with electrical service, dedicated water heater, water pump, chemical storage cabinet, and water supply.
 - Provide clothes hooks, seating bench, towel dispenser, and an adjacent dressing area.
 - Provide a timer-operated pump switch to be operated by the patrons.
 - Provide waterproof lighting fixtures, outlets, and switch gear.
 - Consider aluminum or nonferrous metals for hardware, AC ducts, AC registers, and door frames.
 - Slope all floor surfaces away from the spa and divert into floor drains.
 - Provide adequate conditioned air and exhaust fans.
-

April 1999



A. General Concepts

This chapter contains examples of a typical fitness facility that conforms to the requirements and the functional relationship guidelines found in the rest of the guidebook. Use these examples to see how a fitness facility works, how the building relates to the site, and how the elements relate to each other. The plans also show how a fitness facility can be arranged and how an expansion can be accommodated while maintaining the same functional relationships and circulation system.

The schedules and tables included in this chapter provide guidance on the recommended space, finishes, lighting levels, and HVAC requirements appropriate for each space.

B. Example Floor Plans

A medium facility example floor plan has been omitted because it is so similar to a small facility. Medium facilities will be larger than small facilities based on the allowable square footage for each area as defined in the [Table 2: Minimum Space Allocation Requirements](#).

These examples are intended only as representative floor plans to show functional proximity as a starting point for design of the facility and should not be considered as a standard design. As this guide is utilized on future projects, examples of successful floor plans may be added as attachments.

1. Small Facility

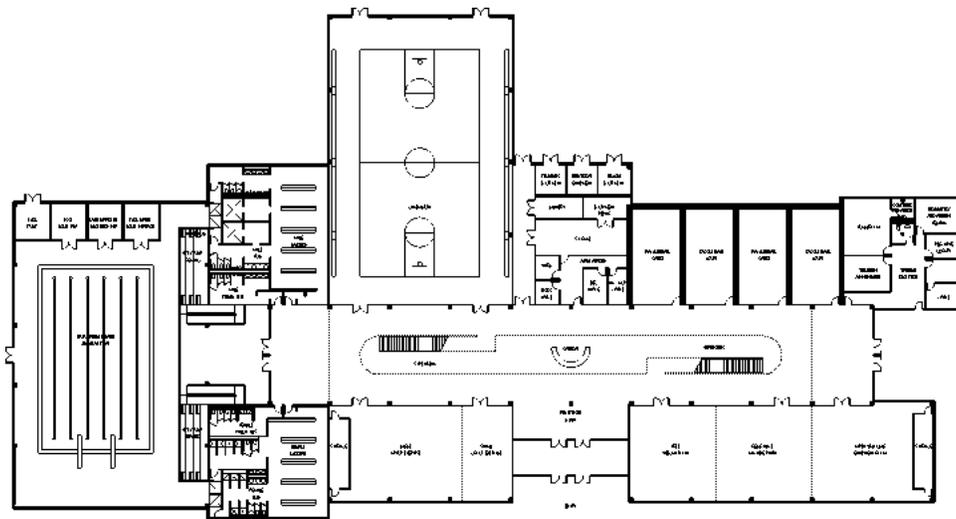


Figure 12

[Click here to view high-resolution PDF](#)

2. Large Facility

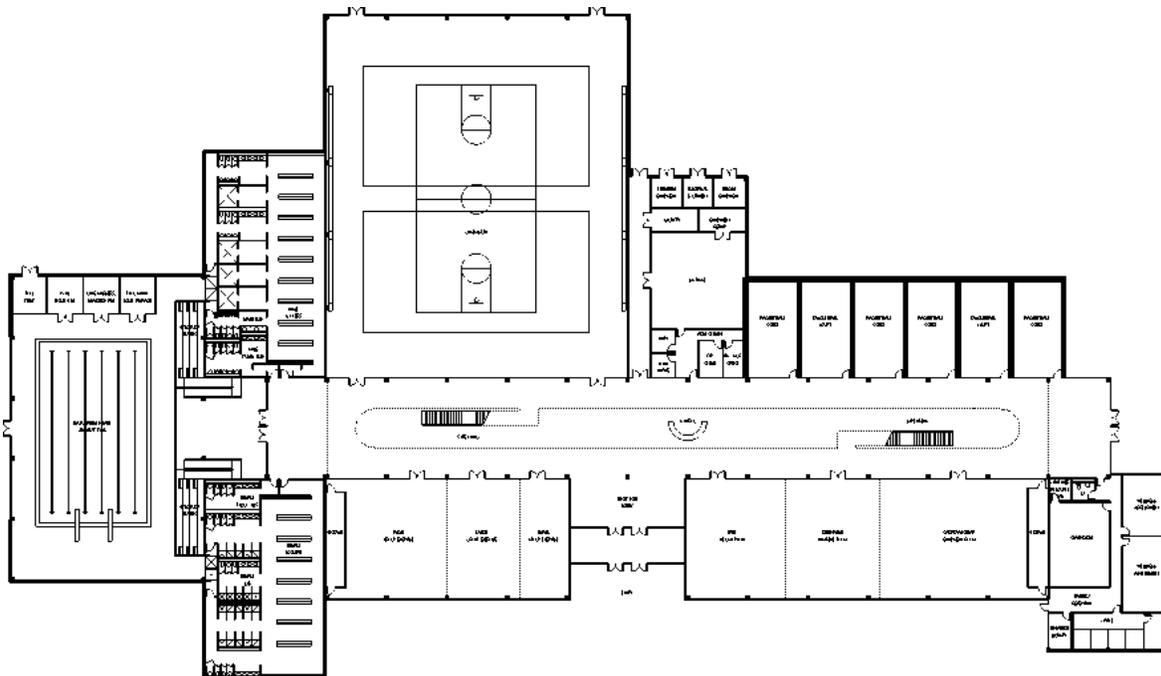


Figure 13

[Click here to view high-resolution PDF](#)

C. Tables

Tables

1. [Table 1: Base Classification](#)

- | |
|---|
| 2. Table 2: Minimum Space Allocation Requirements |
| 3. Table 3: Sports Flooring Performance Characteristics Table |
| 4. Table 4: Lighting Schedule |
| 5. Table 5: Room Finish Schedule |
| 6. Table 6: Related Air Force Documents |
| 7. Table 7: Related Reference Documents |

D. Reference Documents

Table 6: Related Air Force Documents	
Air Force Services Fitness and Sports Golden Eagle Standards	
AFH 32-1084	Standard Facility Requirements
AFH 32-1163 (I)	Engineering Weather Data
AFI 31-209	Protection of USAF Resources
AFI 34-701	Short-Term Child Care
AFI 32-1021	Planning and Programming of Facility Construction Projects
AFI 32-1023	Design and Construction Standards and Execution of Facility Construction Projects
AFI 32-1024	Standard Facility Requirements
AFI 32-1032	Planning and Programming Real Property Maintenance Projects Using Appropriated Funds (APF)
AFJMAN 32-1090	Noise and Vibration Control
AFMAN 32-1181	Electrical Design- Interior Electrical Systems
AFPAM 32-1097	Sign Standards
AFPD 23-3	Air Force Energy Management

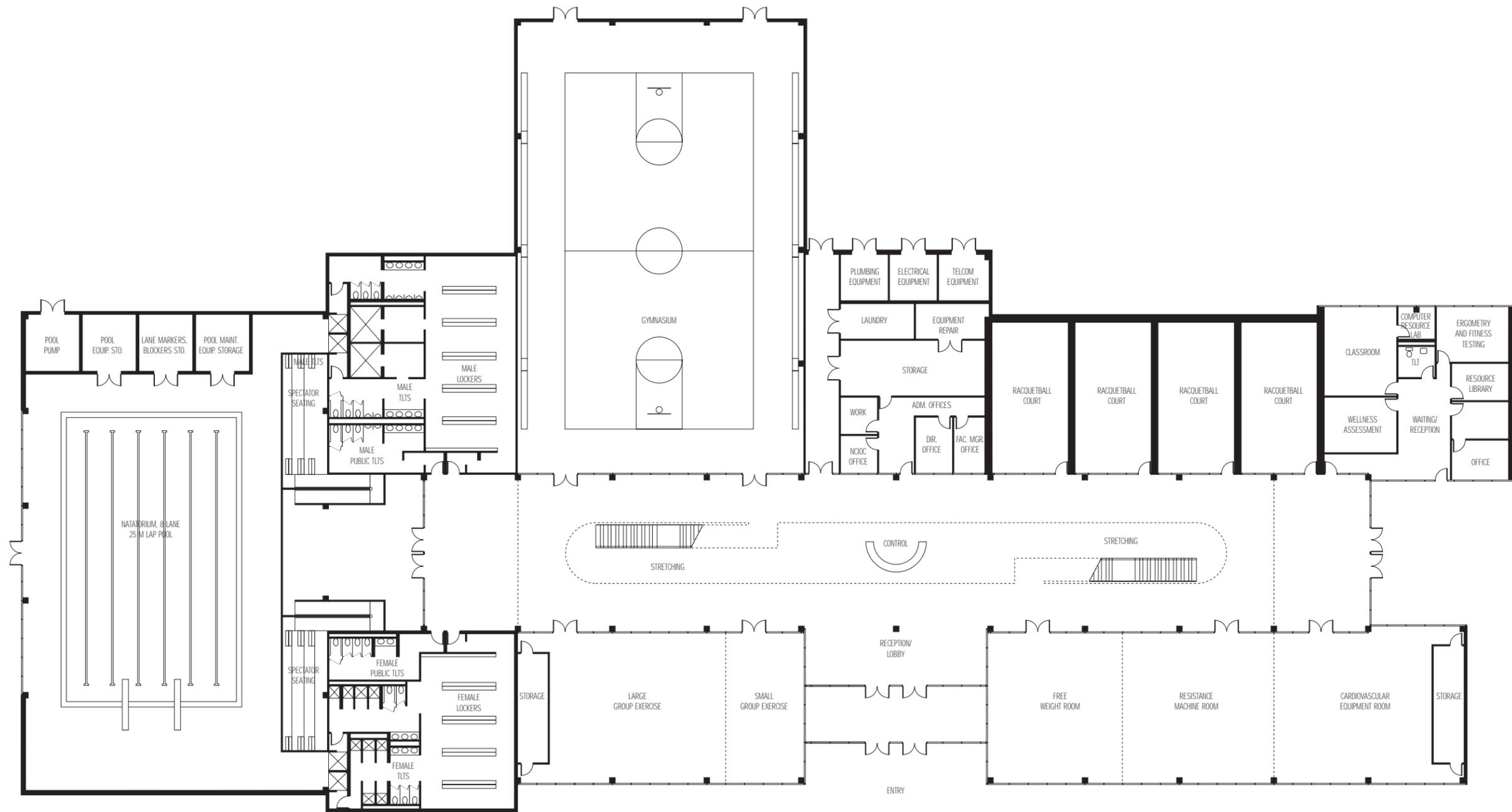
AFPD 32-10	Installations and Facilities
	Achieving Design Excellence
	Air Force Cost Guides/Handbooks
	Installation Force Protection Guide
	USAF Base Architectural Compatibility Guide
	USAF Environmentally Responsible Facilities Guide
	USAF Interior Design Guides
	USAF Landscape Design Guide
	USAF Project Managers' Guide

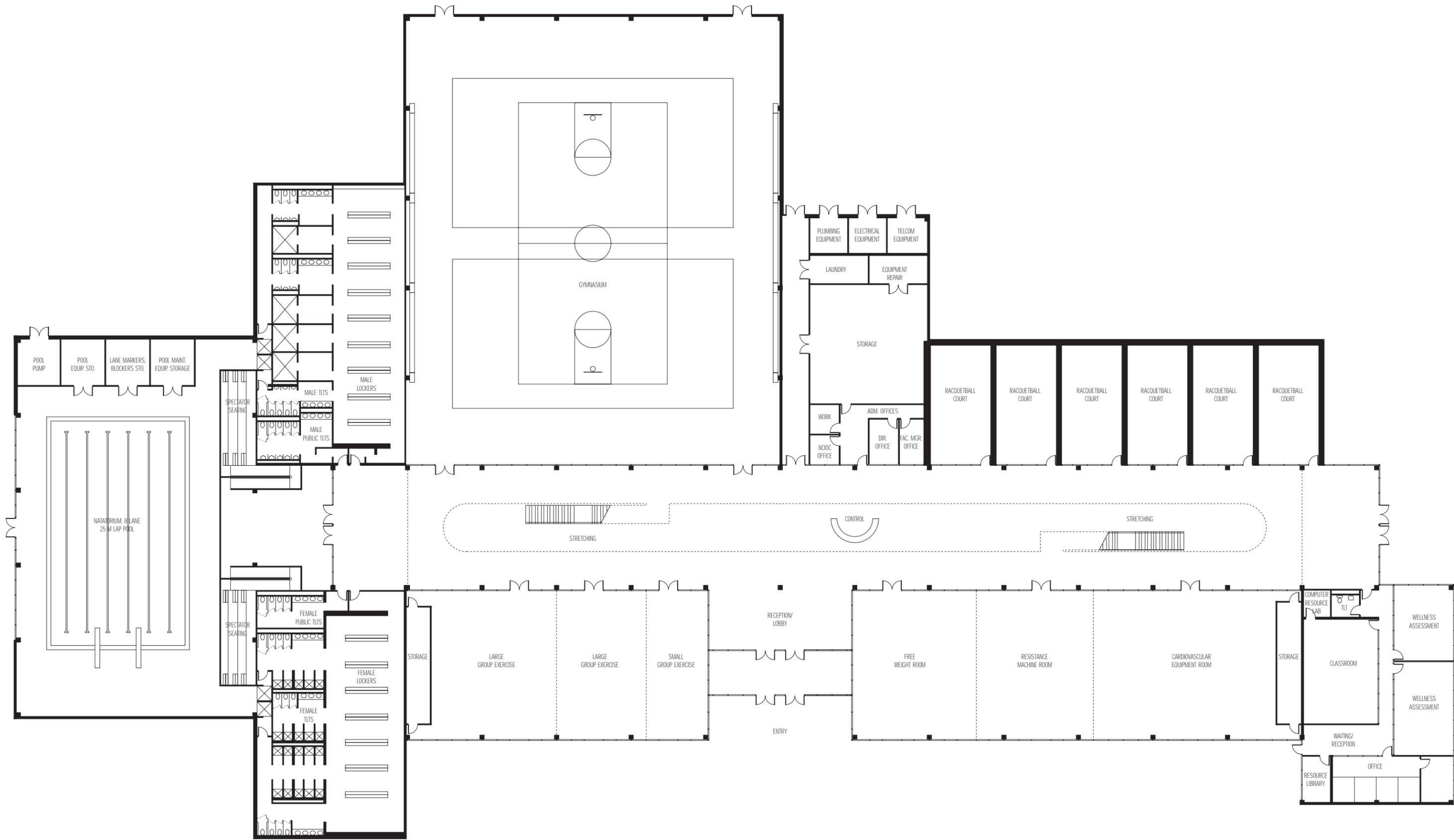
Table 7: Related Reference Documents

ACSM	American College of Sports Medicine Standards
ADAAG	Americans with Disabilities Act Accessibility Guidelines
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers Fundamentals Handbook
ASHRAE Standard 62-89	Ventilation for Acceptable Indoor Air Quality
DIN	Deutsches Institute fur Normung Standards
DoD 5100.76-M	Design Guide for Physical Security of Facilities
DoDI 6055.6	Department of Defense Fire Protection Program
IES	Illuminating Engineering Society's Illuminance Selection Procedure

MIL-HDBK-1008 (Current Edition)	Military Handbook-Fire Protection for Facilities Engineering Design and Construction
NFPA	National Fire Protection Association
International Building Code (NEC)	National Electrical Code
International Building Code (NPC)	National Plumbing Code
UFAS	Uniform Federal Accessibility Standards
	Ramsey/Sleeper Architectural Graphic Standards (Current Edition)

April 1999





USAF FITNESS FACILITIES DESIGN GUIDE



This guide provides the basic guidelines for designing fitness facilities to enhance combat readiness and quality of life for the entire Air Force community.

Any comments or suggestions regarding this guide should be directed to:

HQ AFSVA/SVPAF
10100 Reunion Place,
Suite 402
San Antonio, TX 78216
(210) 652-7021
DSN 487-7021

HQ AFCEE/DCD
Headquarters Air Force Center
for Environmental Excellence

Brooks AFB, TX 78235-5361
(210) 536-4208
DSN 240-4208

Note: For best results when printing a hard copy of these documents from MS Internet Explorer, click your mouse somewhere in the text area of the main frame of the document you wish to print and use the default menu selection of "Only the selected frame". This will allow you to print multiple pages of sections and prevent printing out menu frames that are not needed.

April 1999

Chapter 1- Introduction

- A. Purpose
- B. Fitness Facility Description
- C. Overview of Design Guide

Chapter 2 - Programming Criteria

- A. General
- B. Building Code and Accessibility Considerations
- C. Site Issues
- D. Fitness Facility Functional Relationships
- E. Space List and Area Recommendations

Chapter 3 - Design Criteria

- A. General
- B. Site Design
- C. Building Design
- D. Building Systems

Chapter 4 - Functional Area and Space Guidelines

- A. Core Areas
- B. Health and Wellness Center
- C. Enhanced Areas

Chapter 5 - Illustrative Design Information

- A. General Concepts
- B. Example Floor Plans
- C. Schedules and Tables
- D. Reference Documents

USAF | **FITNESS FACILITIES** | **DESIGN GUIDE**

Any comments or suggestions regarding this guide should be directed to:

HQ AFSVA/SVPAF
10100 Reunion Place,
Suite 402
San Antonio, TX 78216
(210) 652-7021
DSN 487-7021

HQ AFCEE/DCD
Headquarters Air Force Center
for Environmental Excellence

Brooks AFB, TX 78235-5133
(210) 536-4208
DSN 240-4208

April 1999