

**Updated  
2008  
Guidance**



# **Fitness and Exercise Spaces**

**1.0 Introduction**

The concept of providing purpose designed indoor spaces for 'fitness and exercise', is widespread in England. Perhaps a modern day response to the sedentary lifestyle and time pressures that our technological age has created, such facilities enjoy a strong market that seems to be constantly developing and diversifying. The forms and designs can be extremely varied and are often enhanced with strong branding with the addition of music and plasma screens.

*The concept of providing purpose designed indoor spaces for 'fitness and exercise', is widespread in England. Fitness and exercise spaces may form stand alone clubs or be part of a larger public sports and leisure complex.*

However these facilities should not be dismissed as an extension of the fashion and leisure industries. They can provide a valuable way for people of all ages, ethnicities and abilities to introduce physical exercise into their daily lives with the obvious benefits in health, fitness and wellbeing.

This guidance note aims to provide an understanding of the underlying design principles, the technical issues and the critical factors that need to be considered in a well designed project.

The language used to describe such facilities is also diverse and potentially confusing. Terms such as studios, gyms, suites, and zones seem to be almost interchangeable when describing various spaces and are often linked with brand names to enhance market identity.

Please refer to the glossary in Appendix 1 for some of the basic technical terms such as Cardiovascular, Aerobics, and Pilates.



Open exercise space



Space with fitness machines

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- Aerobics
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- Fitness program
- Free weights
- Health and Fitness Suite
- Pilates
- Resistance
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- Strength and Conditioning
- Stretching area
- Studios



**2.0 General**

**Location and Site Planning**

Prior to designing a health & fitness facility, the proposed site location and development should be assessed in terms of catchment area, potential market and target user demographics.



The health & fitness suite may be a stand alone facility, or be part of a larger development. This may impact upon the extent of site facilities needed.

A well designed facility should take into account the following:

- Impact of site shape and contours on the building’s location and orientation.
- Clearly defined, welcoming and attractive entrance.
- Site accessibility, including proximity to roads and links to public transport. A traffic analysis may be required to ascertain impact on the site and surrounding infrastructure.
- Vehicular circulation and parking provision for cars, bicycles, motorcycles and staff parking.
- Any need for an overspill parking area.
- Adequate provision for accessibility in respect of both parking and building access – consider site gradients, and avoid stepped or ramped approaches

- Ensure that coaches, service and emergency vehicles can be accommodated.
- Allowance for possible future expansion to cater for new activities and trends.
- Consider external factors, such as security, and environmental issues that may impact upon the location and orientation of the building or the overall design.
- Refer to existing Sport England design guidance with regard to site layout<sup>1</sup>.



<sup>1</sup> Sport England design guidance note ‘Car Park & Landscape Design © 1999  
<http://www.sportengland.org/carparking.pdf>

**Accommodation**

Health & Fitness suites, incorporating fitness and exercise spaces, may be provided to suit specific needs and market requirements. They may comprise:

- A self contained public facility which complements other indoor sports as part of a multi-sports complex.
- Part of a health and fitness club, which includes other facilities e.g. swimming pool, treatment areas, sauna, steam room and spa pool.
- Part of a school or higher education establishment for use by students, staff and the wider community.
- A dedicated fitness training unit for sport e.g. as part of a rugby club.
- A corporate unit for use by employees and possibly their families.
- A facility provided within a hotel complex.
- A rehabilitation unit or medical fitness facility forming part of a hospital or physiotherapy unit.

Health & fitness suites typically include a fitness gym (containing fitness equipment), studio spaces, reception area, café/bar, changing rooms (including showers and toilets) and other sundry facilities.

User demographics and facility requirements will impact upon the design and size of the facility. It is vital that the service provider identifies market criteria at an early stage. There are a wide range of potential disciplines.

The space should be flexible and able to accommodate new classes, programmes or trends that may become popular in the future.

A typical health and fitness suite will consist of:

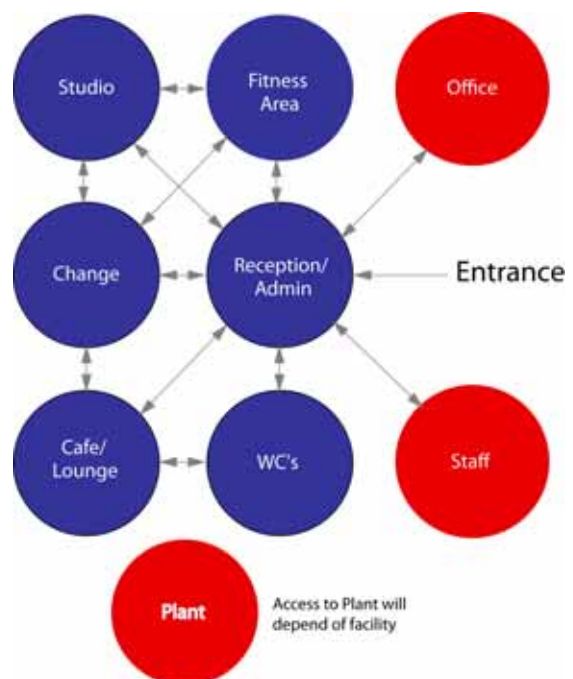
- Reception
- Office
- Changing Rooms & Toilets (including accessible facilities)
- Fitness Gym
- Studio(s)
- Plant Room
- Storage
- Staff Facilities appropriate to size of the

facility

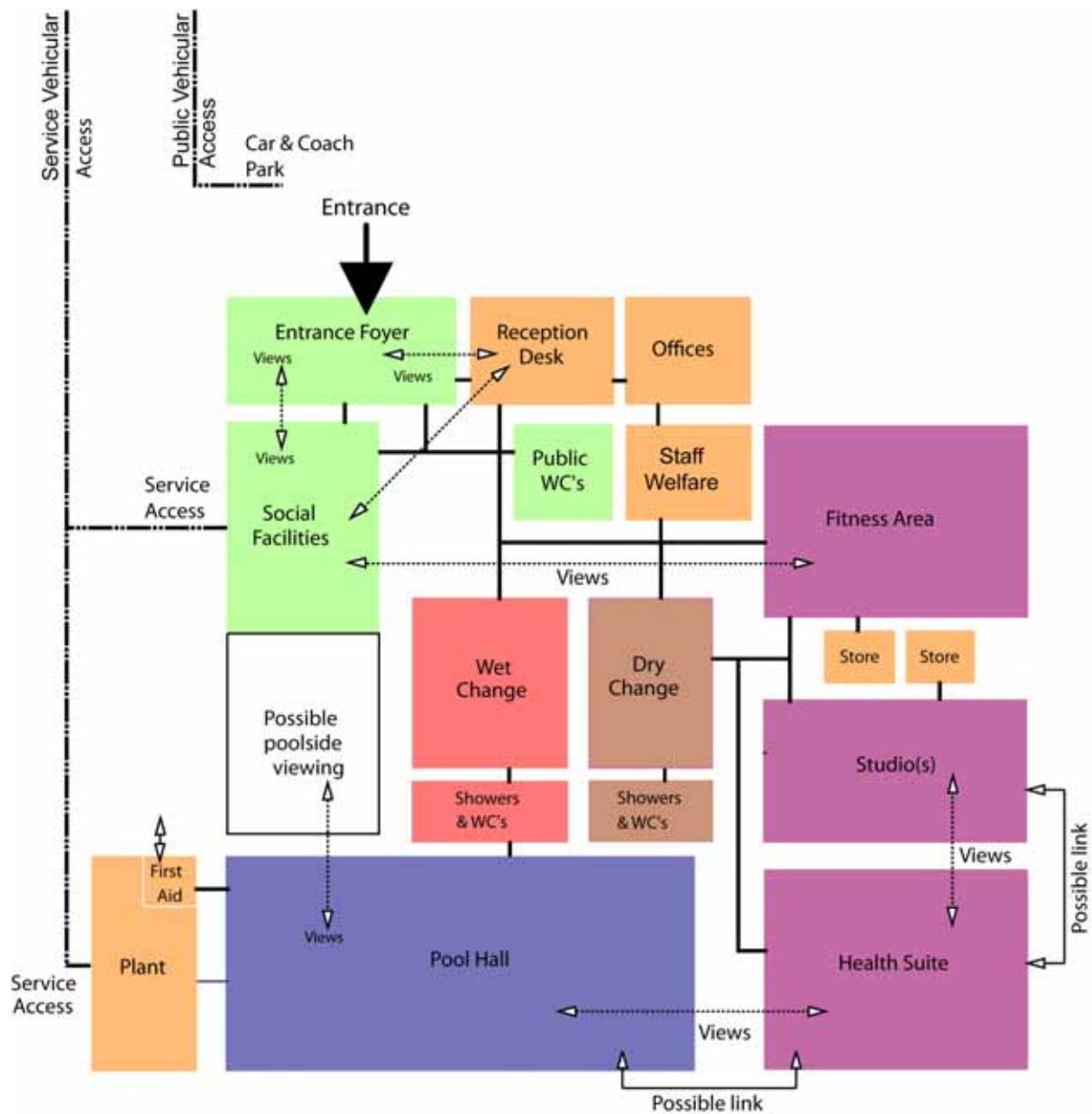
***Fitness suites should have a bright open design. Circulation should be clear and simple, long or narrow corridors should be avoided.***

Examples of additional facilities;

- Café and/or bar
- Retail outlets or concessions
- Swimming, training or leisure pools
- Health spas, e.g. saunas, steam rooms and pools
- Health and beauty treatments, e.g. massage, relaxation, alternative therapies, hairdressing and manicure
- Crèche
- Squash courts
- Tennis courts
- Physiotherapy/sports injury clinics
- First Aid room



**Diagram of relationships of main spaces**



Basic relationships between the main activity and support spaces of a notional health & fitness centre. These may vary depending on the scale of accommodation to be provided.

Example of relationships in a large Health Club

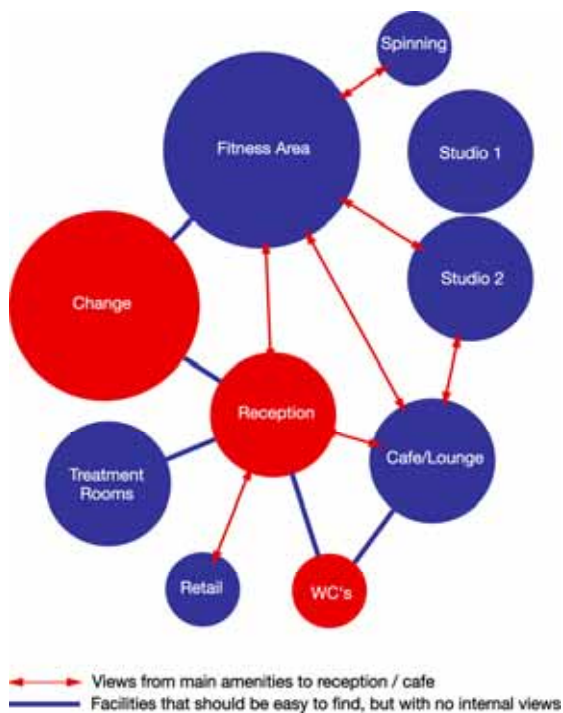
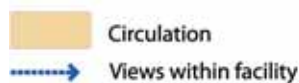
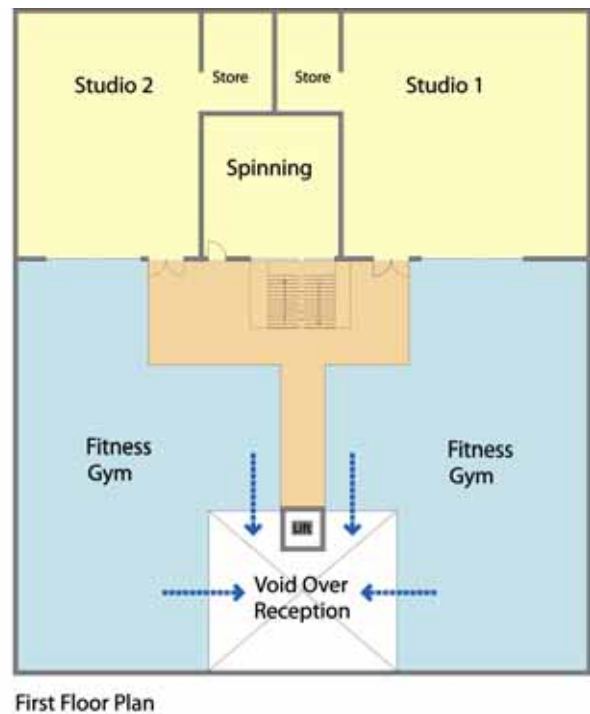
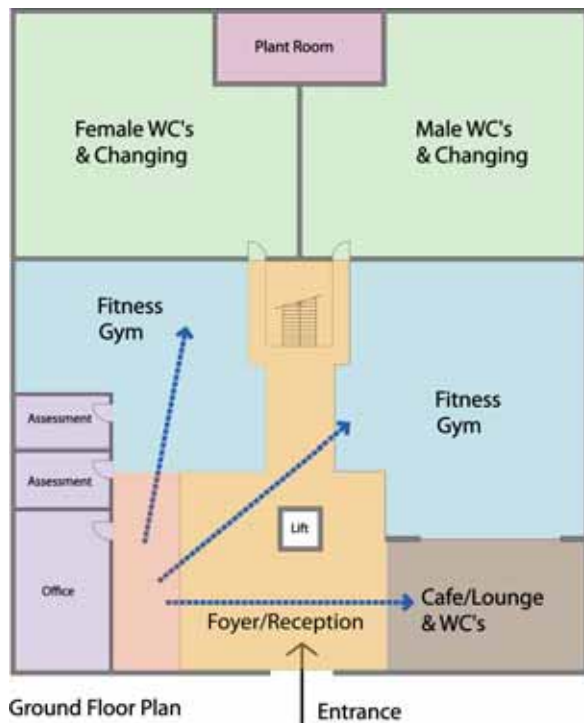


Diagram of relationships of main spaces showing sight lines into facilities

Fitness suites should have a bright open design. Circulation should be clear and simple, long or narrow corridors should be avoided. The club foyer should allow views of the main amenities, allowing users to orientate themselves as well as display the facilities.

Split level clubs spread over more than one level, may utilise a feature stair located in the foyer/reception. Lifts are required in any facility split over more than one level. These should be strategically placed to minimize horizontal travel, clearly signposted and easy to locate from the main entrance.



Example of a multiple level club layout

## Accessibility for All

All facilities providing services to the public need to be accessible to people with a wide range of disabilities. Information on aspects of disabled usage is contained within sections of this document and readers should also refer to Sport England's design guide 'Access for Disabled People'. Reference should also be made to all existing legislation and standards<sup>2</sup>.

The 'Inclusive Fitness Initiative'<sup>3</sup> (IFI) is a valuable resource for information on accessibility, inclusive equipment (that can be used by both disabled and non-disabled people alike), staff training and inclusive marketing strategies.



The initiative can award the 'Inclusive Fitness Mark', which is a quality mark accreditation scheme based on the following;

- Facility Accessibility
- Fitness Equipment Specification

<sup>2</sup> BS8300:2001 Design of buildings and their approaches to meet the needs of disabled people Building Regulations - Approved Document Part M: 2004 and the Sport England guidance note 'Access for Disabled People'

<http://www.sportengland.org/disabled.pdf>

<sup>3</sup> See <http://www.inclusivefitness.org>

- Staff Training
- Marketing
- Policies and Procedures

Sport England and the IFI has been working in partnership with a number of fitness equipment manufacturers for more than five years to ensure that the equipment available on the market is as inclusive as current technology and development will permit.

The lack of availability of accessible fitness equipment can no longer be used as an excuse for 'exclusive' fitness facilities. Furthermore it has been shown that if planned properly, the provision of inclusive fitness equipment does not lead to the need for additional investment or additional space. It simply ensures that your fitness gym is functional for more users than ever before.

The IFI has worked alongside the industry to create an accredited list of fitness equipment, the only list of its kind anywhere in the world. In the UK this accredited equipment list is the definitive guide to the most inclusive fitness equipment available on the market.



### Accessible exercise equipment meeting the IFI mark.

A standard paragraph for use in tender documentation is available from the IFI.

All fitness facilities in England should aim for full accessibility. IFI Mark accreditation should be the goal for all new and refurbished centres. The Mark is applicable to all fitness facilities regardless of sector and greatly increases the size of the market able to be targeted by a fitness suite.



### 3.0 Common Activities & New Trends

Fitness and exercise is an evolving market, and new trends are constantly emerging. For example emphasis in recent years has been to combine aerobics with another activity, such as boxing, dance or martial arts. It is becoming more accepted that fitness should be viewed as a fun leisure activity, and programs are beginning to reflect this.

It is also becoming more commonplace for users to want individual attention or group environments to replace the solitary workout. This section gives examples of common activities and a number of trends which have developed in recent years and may be considered when planning fitness and exercise spaces.



An aerobics class

#### 3.1 Studio Trends

Most classes such as 'Step', or 'Legs, Bums & Tums' require the simple addition of lightweight equipment and rethinking of the space required. Prior to making further or more permanent changes, consideration should be given to the class's likely long term popularity to ensure that it is not just a short term 'fad'. The following classes requiring specialised spaces have proved to be popular and durable:

- **Spinning** – (See glossary for definition of term). Spinning classes often generate high noise levels, additional lighting and loud music to stimulate enthusiasm. Audio-visual equipment using screens and soundtracks showing a moving landscape over which the classes visualize cycling are offered as a more interactive experience. Spinning classes can vary between small and large groups of twenty or more cyclists.

- **Pilates** - A low impact stretching and conditioning exercise that builds core strength, improves posture & flexibility through small repetitive movements. Pilates can be offered as a mat based session, but more intensive classes involve a range of specific Pilates equipment. The apparatus will need to be positioned permanently in a studio as Pilates requires concentration, low noise levels and the equipment is too large to be moved regularly. Pilates is practiced by men, women and children, from a recreational level through to professional athletes.
- **Yoga** - A studio, mat based class. Yoga is a tranquil exercise, based on body positions, controlled breathing and meditation. Studios will require good acoustic separation to allow for quiet concentration. Yoga and other meditation based exercise classes may also require privacy and low levels of illumination or specialist lighting. Blinds to all glazing should be considered.



- **Kickbox / boxing-aerobics** - These classes mix traditional aerobic exercise with boxing and kick boxing techniques, using gloves, pads and punch bags. They provide a high powered, high impact work out.
- **Dance Aerobics** - There are many variations of the idea of mixing aerobic exercise and dance, from belly dancing to ballet. The aim is to allow for exercise and fun, whilst learning basic dance steps. These classes will need additional space for the extended movement.

***Consideration should be given to whether each new trend is likely to last long enough to be worth the investment.***

3.2 Fitness Gym Trends

Variations on traditional fitness gym usage are less common. Fitness gym equipment will continue to evolve and improve, and new equipment such as ‘power plates’ providing vibration training may become popular. However, consideration should be given to whether each new trend is likely to last long enough to be worthy the investment.

- **Vibration Training** - A concept that uses vibrations to enhance both strength and flexibility. The training works by utilising the body's natural reflexive response system. The user performs a series of exercises whilst standing on a ‘vibration base plate’. The training can also be used for physical therapy, rehabilitation, treatment of disorders, geriatric fitness and revitalization.
- **PC / Games Console linked equipment** - Some fitness equipment companies have connected games consoles to exercise machines so that the physical input of the user ‘powers’ the videogame. The controls and screen are integral in the equipment and machines can be linked for interactive competition with others. These are proving popular with the youth and young adult markets.



- **Group Cross-training** - In the wake of the popularity of spinning, cross training is often offered in small groups working together to provide a balanced workout. The group of users workout under the supervision of a trainer and drive each other on. This results in banks of equipment having to be ‘reserved’ for the group to work together.
- **Personal Training** – This form of one-to-one interaction has always been popular for athletes and more affluent fitness enthusiasts. Fitness centres are now offering more affordable personal training to all users, and many are beginning to take advantage of this.



The personal trainer will assess each user and offer a weekly tailored program realistic and suitable for them. Depending on the requirements, a workout could use all or part of the fitness suite, and often a separate room is provided for floor based, stretching exercises.

- **Elite training**  
Professional sportsmen & athletes may require dedicated specialist gyms during training. These may be linked to specific sports clubs or university facilities.

In addition to typical fitness gyms, more specialised facilities are available offering medical and training support to national and international athletes.

Force plates may be used to test various aspects of an athlete’s performance. The force plates are set into the floor, and the athlete performs various activities with the results analysed by computer.

The results of the testing can be utilised to design specific training programs tailored for each athlete’s specific needs and subsequent monitoring and performance testing.

- **Stretch and conditioning** – Running in tandem with specific training required for athletes, stretch and conditioning can be used to enhance their physical and physiological development. Stretch and conditioning includes plyometrics, speed and agility, endurance and core stability as well as strength training. Workouts are individually tailored to each athlete, depending on their needs. Sports clubs may offer this program within their gyms, and some general fitness centres may also offer this as a personal training option.

**Children and Youth gyms** - Youth gyms are emerging as a new concept for those under the age of 16. Individual ‘adult free’ zones offer specialist fitness gym equipment for the youth market. Youth gyms attempt to address

ongoing health issues and educate young people into an active lifestyle, tackling inactivity and obesity.

From a health and safety stand point, young people should only be allowed to exercise in a gymnasium where the environment and equipment have been specifically designed to suit them. As the users are under the care of the fitness centre, security and privacy are key issues.

*Youth gyms are emerging as a new concept for under 16's. Individual 'adult free' zones offer specialist fitness gym equipment and activities for the youth market*



Blinds should be provided to any glazing, and entry should be controlled or monitored. Staff members need to be specifically trained to deal with young people, and may need to be security vetted where their background has not been clearly demonstrated and verified.

If providing traditional cardio vascular and resistance areas for under 16's, specialist equipment is required. Adult fitness machines are not suitable and operators must supply alternatives suitable for the intended age group.

Specialist professional services should be obtained, to develop the design in conjunction with advice from suitable equipment suppliers or manufacturers.

- **Youth Zones**



**Youth fitness gym equipment.**

Alternative and innovative equipment is emerging on the market based upon 'Youth Zones'. These use computer game technology to encourage individual and group exercise for children. It motivates the user to be active with the games they play by:

- Throwing balls at, or hitting electronically sensitive panels and lights creating sounds, visual effects and scores. This can be done on an individual level, beating the previous score, or in teams against others.
- Interactive dance mats can be used, again to generate a score, or in large classes with a plasma screen.
- PC/Games Console linked cardio-vascular equipment.
- Classes of street dance or other group activities with a real or interactive instructor.
- Interactive climbing walls.

- Organised games of basketball, football on computerised pitches, with automatic sounds and scores.



**Design to appeal to the youth market.**

The design of the youth zones should appeal to the teenage and youth market, using lighting, sound and visual effects to create a unique experience.

- **Mobile Gyms**

As a new way of bringing fitness to all, mobile gyms have been introduced to the market. A large mobile articulated trailer is set up internally as a mobile fitness gym delivering, in many cases, a free gym experience to more inaccessible and under provided areas. The trailers hold enough cardio vascular and resistance equipment for a basic work out and remain in one place for a period of time attracting new fitness gym users, GP referrals, and those who cannot reach a regular club

The mobile fitness gym's staff are trained to encourage users to maintain their fitness levels after the fitness gym has moved on.

Mobile gyms can also allow fitness gym service providers to evaluate local market viability prior to building a permanent facility.

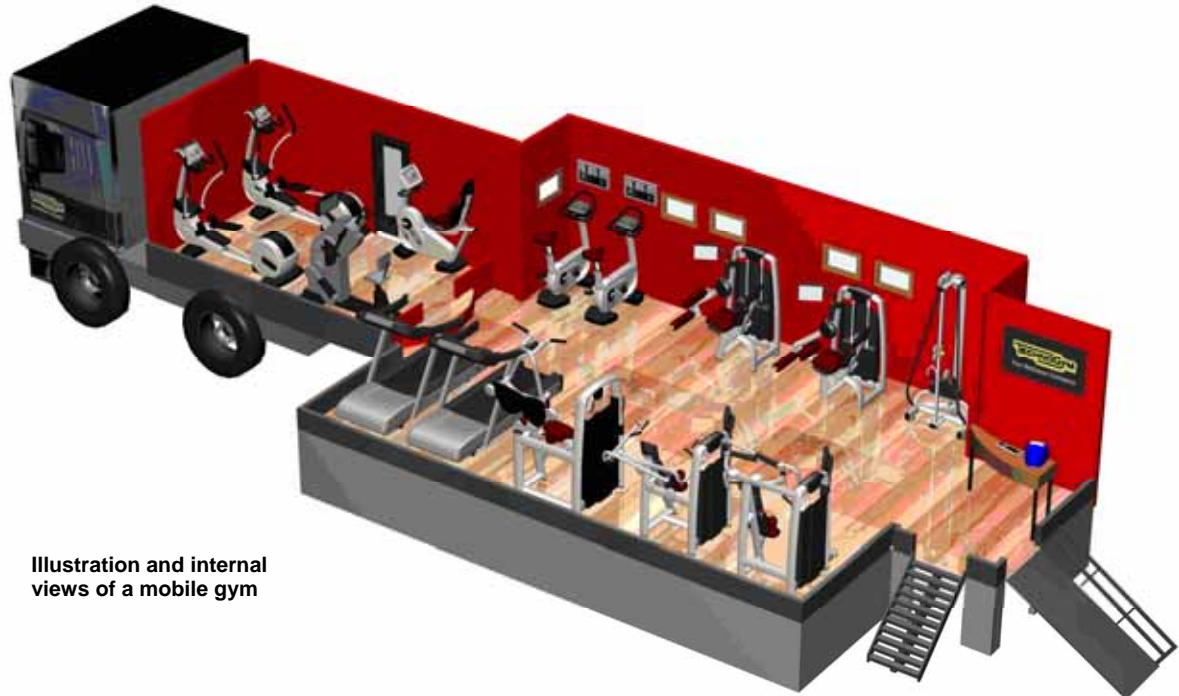


Illustration and internal views of a mobile gym



## 4.0 Facility Planning

### 4.1 General Areas

#### Reception & Entrance

Fitness facilities forming part of a larger centre may require a separate reception point with its own access control system. The fitness entrance should be clearly visible and enticing.

For stand alone fitness centres the foyer and entrance areas are the first point of contact for potential users and need to be warm, inviting and comfortable.



Access may be controlled from the reception desk by an access system e.g. turnstile and gates. Gates must always be provided alongside turnstiles to allow access for wheelchair users and buggies.

The system may be a combination of:

- Magnetic swipe/smart card or PIN code through a club membership control system.
- 'Pay as you Go' system using magnetic swipe tickets and/or tokens.
- Manually controlled access by reception staff.

Depending upon the size of the facility, it is recommended that consultation with access control system specialists takes place prior to finalising the entrance and reception design.

The design should be based upon the ability to

cope with peak throughput, making provision for large numbers of users, without the need for them to 'queue out of the doors' which will cause operational difficulties. The reception desk is the primary point for obtaining information, booking and purchasing goods. Towels may also be distributed and dropped off, requiring careful thought of the desk's design to enable it to provide the various functions without impacting upon its operation. It is essential that the reception desk has a lowered section allowing access for children and wheelchair users.

The reception desk and staff need to be safe and secure, particularly as the desk may house a range of equipment including:

- Computer equipment forming the basis of:
  - Electronic point of sale system.
  - Membership management systems.
- Pneumatic cash handling systems.
- Electronic tills.

Careful consideration should be given to how these systems are integrated.

The staff side of the reception desk should have direct access to a secure office.

#### Office

A secure office will need to accommodate the day to day administration and general house keeping duties. There should be a visual link with the reception area. The office may house sensitive information, account details and overnight cash handling facilities.

Depending upon the size of the facility, property insurers may have specific requirements for security provisions and therefore the design should be progressed in consultation with them.

The office environment should be carefully considered, to provide a pleasant, quiet and cool working space.

The size of the office should be assessed to suit the operational needs including:

- Space for necessary staffing and circulation
- General office furniture
- Safe or secure cash handling facilities
- Secure storage cupboards
- CCTV monitoring system
- Telecoms/Fax equipment
- Computer network equipment

## Café or Lounge

Fitness facilities forming part of a larger centre are not generally provided with a dedicated Cafe or Lounge, this normally being provided as part of the overall centre. In this case a seating area with vending machines could be provided as part of the fitness area.

Where the fitness facility is stand alone, a café and/or lounge area should be provided and be located close to the reception foyer.

The Café often forms the social hub of the facility, as well as providing an area for relaxation and refreshment before or after using the facilities.



A kitchen and servery counter may be a requirement depending upon the size of the facility. Any catering facility provided, should be determined to suit the number of users and the proposed menu. Provision should be made for vending machines if a Café is not provided, or for times when the Café kitchen is closed.

The kitchen and servery environmental systems will need to be adequately designed to prevent the spread of cooking odours into other areas of the building.

Advice from specialist catering equipment design companies should be sought at an early stage of the design, in order to ascertain space and servicing requirements, including the route for deliveries, bottles and removal of waste from the refreshment area and storage on site prior to collection. Wherever possible, servicing should avoid the need to utilise public access routes.

The café should be located close to public toilet

facilities and its kitchen should be provided with dedicated staff sanitary accommodation.

## Customer Sales and Marketing Area

Operators often require a dedicated private area away from reception to provide promotional marketing and hospitality without distracting staff operating the main reception desk.

This should be a quiet area in the main foyer area, or preferably be a separate room. New customers may be given details on the centre, prices, facilities and a tour.

## Changing Rooms

Changing room capacities and sizes need to be calculated to meet the likely normal maximum occupancy level and patterns of use. The centre operator may also hold historic data on typical club usage which can be utilised. Each facility will require an individual assessment of capacity and layout, however as a guide the following assumptions may be considered:

### Fitness gym:

- Where the fitness area is relatively small, for example, when part of a small centre one changing space should be provided for each item of equipment. For larger centres changing spaces and lockers are provided at a lower ratio as gym usage is individual and users arrive and leave at different times.
- Provision should anticipate peak time usage where possible, although this will inevitably lead to underutilisation during other periods. It is common for fitness gym users to arrive at the facility already changed. It may therefore be possible to discount the number of changing spaces needed specifically for the fitness gym by between 25 - 35% of the number of workstations.
- However, factors such as the facility's location, expected catchment area and brand success can all impact upon the changing room requirements, and the operator should be consulted at an early stage of the design to more accurately assess changing provision.
- Allow for one shower for every six changing spaces.

### Studio changing requirements.

- In addition to fitness gym members, the changing rooms will also need to be able to cater for the demand of the participants of studio classes, particularly at peak periods as classes start and end. Capacities should

therefore be based on the needs of large groups of people to use the changing rooms simultaneously, even after taking into account that a number of users may arrive changed or return home to shower and change:

- Allow one changing space for each 5m<sup>2</sup> of studio floor area.
- Allow for 1.5 lockers for each person using the studio(s) over a one hour period.
- Allow for one shower for every six changing spaces.

Changing facilities should be planned as single sex facilities incorporating buffer changing areas for peak demand or certain large groups. Junior activities or youth gyms may require separate changing facilities, and consideration should also be given to the provision of additional unisex family changing.

Accessibility needs careful consideration. Many people with disabilities regularly attend fitness gyms, and may be with carers or personal assistants of the opposite sex. It is therefore essential to provide individual unisex accessible changing rooms in addition to providing full access to the larger single sex changing rooms.

Where the centre also includes a wet facility (e.g. fitness pool) the changing rooms should be designed to separate wet and dry foot traffic.

Changing rooms should typically consist of:

- Changing areas
- Toilets
- Shower areas
- A suitable range of lockers
- Vanity area with mirrors and hair dryers

***Materials used must be robust, practical, and be selected in keeping with the quality of the overall facility.***

Changing areas have traditionally consisted of open bench seating. However, it is increasingly common to provide a range of individual changing cubicles in addition to bench seating to allow privacy for those who prefer it.

It is recommended that all showers should be provided with fully enclosed cubicles.

High quality durable lockers should be provided in a range of sizes and shapes. Consideration should also be given to the provision of smaller lockers for valuables in circulation areas adjacent to the gym or studio.

Materials used must be robust and practical, but also be selected in keeping with the quality of the overall facility and attempt to give the changing rooms an attractive and user friendly environment.

Where vandalism is likely to be an issue, careful thought will need to be given to the design and selection of materials to reduce the risk of damage occurring. This can also be assisted by ensuring that the changing rooms are not remote from the facilities they serve, and are easily supervised.

## 4.2 Fitness Gyms

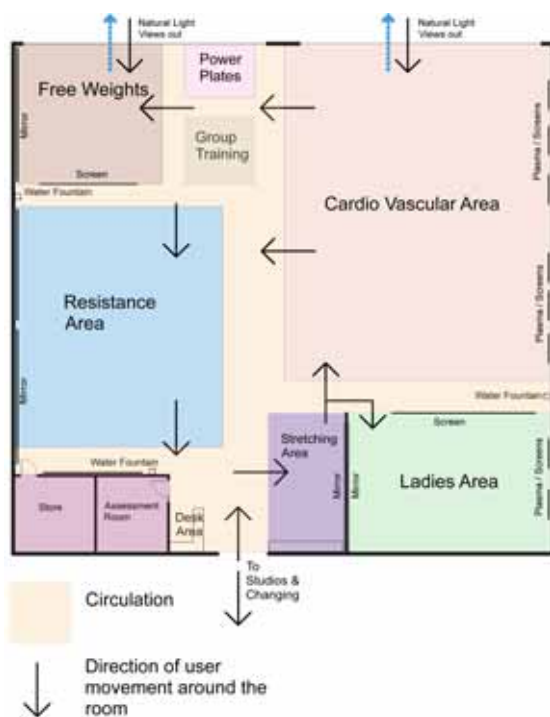
### Fitness Gym Size & Shape

The overall fitness gym area will depend upon the anticipated number of users and mix of equipment. The minimum required space is 25m<sup>2</sup>, although the majority of gyms occupy an area of 100-200m<sup>2</sup> to ensure a range of options are given to users.

The optimum ceiling height should be between 3.5 - 4m from finished floor level and should not be lower than 2.7m, as this would limit the use of some exercise equipment.

The shape of the fitness gym area will inevitably be defined by the overall design of the building, but ideally should aim to be broadly rectangular with a length to width ratio below 3:1.





**Schematic Fitness Gym Equipment Use**

### Space Allocation

Adequate space allocation is important to ensure the required range of equipment and facilities is accommodated. Calculation of the total area and capacity of the fitness gym should be based upon a floor area of 5m<sup>2</sup> per piece of equipment. This includes an allowance for circulation space around the equipment. The equipment mix will depend upon the target market.

For general use, the split ratio of cardiovascular (CV) equipment to resistance equipment should be approximately between 40% to 60% however this will depend on local need and demand.

Careful consideration is also needed for users with disabilities, including access for wheelchair users, which may impact upon space allocation and layout, please refer to the Inclusive Fitness Initiative and existing requirements and guidance<sup>4</sup>.

In addition allowance should be made for a Fitness gym desk, information area and assessment rooms.

### Fitness Gym Desk & Desk Area

<sup>4</sup> Refer to Sport England design guide 'Access for Disabled People', British Standard BS 8300 and Building Regulations AD Part M – 2004.

In addition to a centre's main reception area, a secondary dedicated fitness desk is normally located at the entry to the fitness suite and may provide:

- A base for fitness gym staff
- Record card storage (manual or computerised systems are used). The cards record each user's fitness program and should be accessible directly by both user and trainer.
- Towels collection/return point.
- Storage for promotional or information literature.

A chilled drinking water fountain, and paper towel dispenser (for wiping down machines after use) should also be provided.



**Fitness Gym Desk**

### Information Area

Information display boards should be positioned in locations that will not obstruct primary circulation routes. Fitness gym etiquette and equipment use information should be included.

### Assessment Rooms

Assessment rooms should be provided for consultation to be undertaken confidentially. The room may accommodate the following:

- Desk and comfortable chairs for trainer and trainee
- Telecom/computer equipment
- Heart rate/pulse monitoring equipment
- Weighing scales and height gauge
- Secure storage for valuables and records
- Information board

If an assessment room is also to be used for first

aid treatment, a wash hand basin, a stretcher bed and basic life saving equipment would be required.

**Individual Fitness Gym Zones**

A fitness gym is generally separated into individual zones, determined by equipment or exercise type and a typical user may use the gym in the following sequence:

- Stretch area (warm up)
- Cardiovascular area
- Resistance and/or free weights area
- Stretch area (warm down)



**Stretch Area**

(Refer to glossary for definition)

The stretch area should be the first and last area to be used, for warming up and stretching limbs before moving onto other equipment, and warming down afterwards. It should be located near to the fitness gym entrance to promote its use.

The stretch area should be supplied with vinyl covered padded floor matting and wall mounted mirrors.

A wall barre should be provided at a height approximately 1.2m above the floor for support. An un-mirrored wall area should be provided for stretching, this will require a robust wall

construction and finish. Yoga balls and other accessories may also be used for warming up. Accessible racking and storage should be provided to enable loose equipment to be stored.

Signage and information on correct stretching techniques should be provided.

Avoid direct down lighting above the stretch area, as this will cause glare for the user who may be laying down and facing up during stretching exercises.

**Cardiovascular (CV) Area**

(Refer to glossary for definition)

The CV area should be on a single level and contain fitness machines with integral visual displays and audio output (normally headphones) requiring mains power supply. Equipment may also be linked to a centralised fitness monitoring programme and require data connections. Power and data should be provided through local inset floor boxes arranged in a grid over the fitness gym area. (See fitness gym floor notes on page 20). Plinths should not be used.



CV equipment would normally include a number of machines, each designed to provide a different form of exercise, arranged in a combination. The equipment may include the following:

- Tread or Running machines
- Upper Body Ergometers

- Cross trainers
- Bicycles
- Step machines
- Rowing machines

All facilities should aim to provide a range of fully accessible equipment as accredited by the Inclusive Fitness Initiative (IFI)

For facilities aiming for *Provisional* Level IFI Mark Accreditation provide:

- 1 IFI accredited treadmill
- 1 IFI accredited upright or recumbent cycle
- 1 IFI accredited upper body ergometer

For facilities aiming for *Registered* Level IFI Mark Accreditation provide:

- Minimum 30% of all treadmills IFI accredited
- Minimum 30% of all upright and recumbent cycles IFI accredited
- 1 IFI accredited upper body ergometer

For facilities aiming for *Excellent* Level IFI Mark Accreditation provide:

- All treadmills IFI accredited
- All upright and recumbent cycles IFI accredited
- Minimum of 1-2 IFI accredited upper body ergometers (depending on size of facility)
- Minimum of 1 IFI accredited rowing machine and postural support seat

The average user may spend between twenty and thirty minutes on each piece of equipment.

CV areas are generally planned so that the CV equipment is arranged in multiple tiered rows facing one direction, with the lowest equipment at the front, grouped in front of an audio/visual (AV) system. The AV system will normally include a number of large plasma flat screen televisions, wall or gantry mounted, with each screen offering a different entertainment channel. Switched headphone sockets on the exercise equipment allow each user to select the sound channel relevant to the programme/screen being watched.

Some CV equipment can cause impact vibration, particularly tread/running machines. Their position, load transfer and acoustic isolation relative to the floor will need particular consideration.

***Spinning classes are not recommended in the open gym area but smaller groups such as circuit training should be anticipated.***

Occasionally a fitness centre may offer group classes in the main CV area. Spinning classes are not recommended in the open fitness gym area, but smaller groups such as circuit training should be anticipated.



**Cardio- Vascular equipment**

It is common to provide some form of screening within the fitness gym area to create sub-divided private areas. These could include:

- A female only area
- Extended assessment area
- Personal training area

Though these functions may be accommodated in a separate area, a moveable screening system can allow changing needs to be accommodated with minimal impact

Typical type of CV equipment	Power & data required
Rowers	Yes
Recumbent bikes	Yes
Upright bikes	Yes
Treadmills	Yes
Elliptical Cross trainers	Yes
Steppers	Yes
Spinning bikes	No

**CV Equipment Power & Data Requirements**

**Resistance Area**

(Refer to glossary for definition)

A minimum of eight to ten pieces of equipment may provide an adequate range of exercises for most users. The average user may spend between three and six minutes on each piece of equipment. The space needed for each exercise machine will vary considerably.

The equipment manufacturer should be consulted to obtain advice on best practice regarding layout, size and choice of equipment. Mirrors should be provided for users to check their positioning whilst using the equipment.



**Resistance Area**

Equipment should be arranged logically and be zoned by exercise type, allowing users to move strategically. Zones should also be created between equipment rows to allow for circulation, and provision will be needed for easy movement between machines that are in use

For facilities aiming for *Provisional* Level IFI Mark Accreditation provide:

- 1 IFI accredited leg extension or leg press
- 1 IFI accredited leg curl

- 1 IFI accredited upper body multi-station (or equivalent pieces of IFI accredited upper body resistance equipment)

In addition provide a range of small loose equipment (e.g. low weight dumbbells, dynabands etc.)

For facilities aiming for *Registered* Level IFI Mark Accreditation provide equipment as above with the addition of:

- Small equipment pack

For facilities aiming for *Excellent* Level IFI Mark Accreditation provide equipment as above with the addition of:

- High / low pulley
- Chest press
- Shoulder press
- Seated row

If the fitness gym is split over two levels it is preferable to have the heavier resistance equipment on the lower floor. Lift access must be provided to the upper level.

**Free Weights Area**

(Refer to glossary for definition)

Dumbbell weights are normally stored on open racks grouped in weight ranges, with additional benches and stands provided for heavier barbell weights. Typically, the heavier weights area should be positioned at the back of the fitness gym space, or provided in a separate area. If weight lifting (as opposed to weight training) is to be catered for, this should be in a separate room in order to minimise the risk of injury to other fitness gym users.

As the free weights themselves are unrestrained, they can present risk of damage or injury to those other than the weight user and this should be taken into account when developing the design. Management and users should ensure that the free weights are returned to the racks to avoid accidents.

Space should be allowed for ease of movement between the racks, benches and stands. The size of the free weights area will depend on quantity of equipment and weights to be used.



Range of dumb-bells stored on their racks.

The free weights area should have two mirrored walls.

A chilled drinking water fountain and paper towel dispenser (for wiping down equipment after use) should be provided.

**Equipment Selection**

It is essential that the equipment type, functionality, design and layout are developed in conjunction with the facility operator and a brief developed prior to finalising selection or seeking tenders for the equipment.

A client may also consider the option of leasing equipment as opposed to purchase with reference to the facilities proposed business plan and operational arrangements.

Equipment suppliers should be expected to offer a design service and provide expert advice on optimum mix, quantity, and layout options to meet the client brief, prior to placing an order. This may influence the selection of suitable equipment suppliers.



The equipment supplier should have access to the facility operator’s brief, proposed floor plans of both the building and the fitness gym and understands all relevant aspects of the proposed development that may impact upon the selection

of equipment. Meetings between the facility operator and the equipment supplier or manufacturer should also take place both prior to tender and before approval of the equipment.

When selecting ranges of exercise equipment, suppliers, manufacturers and operators have a legal requirement to meet BS EN 957.

**Standards relating to Stationary Training Equipment - British Standard BS EN 957:**

Part 1: 2005	General safety requirements and test methods.
Part 2: 2003	Strength training equipment, additional specific safety requirements and test methods.
Part 4:1996	Strength training benches, additional specific safety requirements and test methods.
Part 5:1996	Pedal crank training equipment, additional specific safety requirements and test methods.
Part 6:2001	Treadmills, additional specific safety requirements and test methods.
Part 7:1998	Rowing machines, additional specific safety requirements and test methods.
Part 8:1998	Steppers, stair-climbers and climbers - Additional specific safety requirements and test methods.
Part 9:2003.	Elliptical trainers, additional specific safety requirements and test methods.
Part 10:2005.	Exercise bicycles with a fixed wheel or without freewheel, additional specific safety requirements and test methods.

Other criteria to aid selection should include:

- The equipment, the supplier and manufacturer should be well known and recognised in the fitness industry, with a good reputation for reliability, life of equipment, maintenance and suitability for intended use. Consider also the period that the manufacturer has been established.
- Equipment function, facilities and appearance are suited to the type of fitness and target market being considered.
- The construction and finishes are suitable for the chosen location. Equipment located in humid or aggressive environments will be subject to rapid damage and corrosion.
- Availability of a complete range of equipment accessible to all. Refer to previous information relating to the Inclusive Fitness Initiative.
- Ease and safety of use by the inexperienced, and provision of clear and precise instructions

and warnings.

- Services requirements e.g. power and data.
- Future upgradeability (including computer software).
- Ease of maintenance and repair of hardware and software, including identification of regular servicing, testing and maintenance required by both the supplier and the operator. Efficient and reliable after-sales service maintenance and replacement. The availability for extended warranties and service contracts.

**Space Requirements**

The equipment supplier should be consulted to obtain best advice on the space requirements around each piece of machinery. Refer to the table below for minimum space requirements and include appropriate clear space to IFI accredited equipment as recommended by the Inclusive Fitness Initiative.

Type of Space	Machine footprint range		Circulation <sup>1</sup>
Resistance area	2m <sup>2</sup> /machine		1.75x machine footprint
Cardio vascular area	1.5m <sup>2</sup> /machine	2.0m <sup>2</sup> /machine	1.75 x machine footprint
Free weights area	2.5m <sup>2</sup> /machine	3.5m <sup>2</sup> /machine	2 x machine footprint
Stretch Area	2.0m <sup>2</sup> /person	2.5 m <sup>2</sup> /person	N/A
Spinning Room	1.0m <sup>2</sup> /machine	1.5m <sup>2</sup> /machine	1.25 x machine footprint

<sup>1</sup> Circulation includes the area immediately around the machine and the minimum aisle width to access the machine, but does not include the general circulation of the room.

**Equipment space requirements**

Type of Space	Storage Details	Area	Critical Height
Fitness gym	Equipment spares Machines awaiting repair Tools & cleaning equipment Promotional materials Small valuables e.g. stopwatch	20 m <sup>2</sup> minimum	2.4m minimum ceiling height. Height as main room preferred 2.4m minimum door height
Spinning room	Audio visual system	2 m <sup>2</sup> minimum 5 m <sup>2</sup> preferred	N/A

**Space Required For Storage Of Equipment (Fitness Gym)**

## Installation, Replacement and Storage

Consideration should be given to the ability to install, remove and replace large pieces of equipment. Doors and corridors should be designed to accommodate the equipment in transit, taking into account additional bulk due to protective packaging.

Where gyms are located on upper floors consider:

- Upgrading the proposed passenger lift to cope with moving the largest single piece or providing a basic goods lift.
- Hoisting the equipment externally up to a temporary opening on the upper floor.

It is recommended that size and load limits are agreed with the equipment manufacturer at an early stage in the development.

Storage space is required to fitness gyms to house equipment awaiting repair, spare parts, or other ancillary requirements. Refer to the table above.

## Fitness Gym Design and Finishes

### Daylight and Views

Natural daylight greatly benefits the atmosphere and appearance of a gym space and unless impracticable, should be provided. Views in and out of the gym, particularly to the reception, swimming pool or sports hall can be beneficial.

Consideration should be given to balancing day lighting and views against the potential for solar glare or heat gain. Locating glazing on facades less likely to receive excessive direct sun or the provision of solar shading may resolve this issue.

The need for privacy e.g. 'female only' areas may also impact upon the ability to provide glazing to certain areas of the gym. The provision of blinds may also need to be considered.





## Floors

The floor structure must be able to resist high dead loads imposed by the equipment, along with the potential for high live loads from:

- Users
- Accidental point load impact (e.g. dropping of free weights)
- Dynamic effects (harmonic vibration from users on machines)

Reference to British Standard BS 6399: Part 1 is essential.

Acoustic isolation may be an issue where vibration or impact can be structurally transmitted from the fitness gym into other areas.

Floor finishes need to be slip, stain and static resistant, and be fit for purpose for a gym environment. They should resist deformation through compression.

The floor finish should contrast in colour to the equipment to ensure that equipment is less likely to be a trip hazard. In addition, a different coloured walkway will greatly enhance legibility within the fitness gym for visually impaired users.

In order to provide maximum flexibility for delivering power and data connections to all equipment, a 3m rectangular grid layout of inset flush floor service boxes or a complete raised floor construction (avoiding plinths) should be provided. The latter allows cabling to be fully concealed – an issue for both appearance and safety (avoidance of trip hazards).

Consideration should also be given to the following:

- The expansion of any proposed floor finish particularly in the event of changes in humidity.
- The position of structural movement joints should be agreed with the structural engineer

when considering the fitness gym layout.

- The floor structure and floor finish in the free weights area must be resilient and able to absorb shocks safely to avoid the risk of dropped weights causing substantial damage to structure or finishes. The finish should be able to recover from impacts without permanent deformation.
- The floor finish should have sufficient friction to prevent the equipment from creeping during use.
- Any electrostatic charge build-up potential must be earthed without risk of shock to users.

Fitness Gym zones are often emphasised by changes in floor finish or colour.

The use of carpet flooring should be carefully considered relative to the development. Although in the UK carpet has been commonly used in fitness gym equipment areas, with a harder finish in the walkways. In mainland Europe carpet is rarely used. Whilst this may be a reaction to a warmer climate, the flooring can be subjected to:

- Oil and grease leaking from exercise equipment.
- Perspiration shed by fitness gym users.
- Drink spillage.

Carpet flooring can improve the gym's acoustic performance, by reducing reverberation (echo) and impact sound transfer, particularly when the fitness gym is located at first floor level. If carpet is selected, it will require a regime of specialist cleaning. Carpet tiles should be used where possible, as they can be individually changed with minimal impact.

Some individual exercise areas may need specialised floor finishes: e.g. vinyl covered foam padded mats in the stretch area; or heavy duty shock absorbing rubber matting in the free weights area. Consideration may be needed to minimise risk of trip hazards between areas of varied floor finish depth.

## Walls

Finishes should take account of the ease of cleaning and maintenance. Scuffing of walls by moving equipment and users may be a particular issue.

Users may also use walls during stretching exercises. Therefore, sharp edges and wall projections should be avoided in these areas.

The wall must be able to safely support any wall



fixed exercise equipment, weight storage racks & mirrors. The use of hollow concrete blocks should be avoided.

Wall should also be designed to provide effective sound attenuation to minimise the risk of sound transmission to surrounding areas adjacent to the gym. Consultation with an acoustic engineer should be considered in order to ascertain minimum project acoustic performance.

### Mirrors

Mirrors can serve to create the illusion of space and reflect natural light back into the space. Continuous mirrors should be provided in required zones. The mirrors should be a minimum of 2m high and meet with British Standard BS 6262. Mirrors should be securely fixed above skirting level, to avoid impact from loose weights or cleaning equipment.

Large continuous mirrors should not be directly fixed to walls but be fixed onto a rigid plywood backing board to avoid distortion. Point fixing mirrors should be avoided; stress points can cause failure of the glass. Mirrors should be bonded to their backing board or mounted onto a metal carrier frame.

### Ceilings

Fitness gym ceilings can substantially contribute to the appearance and atmosphere of the fitness gym. The ceiling can be a combination of the following:

- Fully suspended flat ceilings.
- Fully suspended ceilings with raised (or coffered) feature areas giving extra height needed for specific equipment.
- Ceilings formed by the structural soffit above, with or without independent suspended raft features.
- A combination of the above.

***Allow easy access to building services located above the ceiling. Gyms are potentially highly serviced areas, and will need additional access capability***

The ceiling should be carefully considered to:

- Support integrated or hanging fixtures e.g. loud speakers, ventilation grilles, lighting. Heavier fittings e.g. air conditioning units, screens or gantries should be supported from structural points
- Allow easy access to building services located above the ceiling. Gyms are generally highly serviced areas.
- Provide the necessary acoustic performance. A noise level of NR40 should be achieved, however project specific acoustic performance requirements should be based upon advice from an acoustic engineer and be discussed with the ceiling manufacturer.
- Achieve the required aesthetic design sympathetic to the space and use.
- Provide the required minimum clear heights above the various fitness gym zones, taking into account equipment heights and any additional clearance for equipment users. Consultation with equipment suppliers should be undertaken prior to finalising heights.

### 4.3 Studios

The number of studios and the size of each studio required will be determined by:

- Number of simultaneous classes.
- Type and range of programmes.
- Frequency and duration of each class.
- Number of attendees for each class.

It is vital that providers/operators identify the programmes they intend to provide at an early stage. This affects both new facilities and any improvements or alterations to existing facilities.

When designing a studio the space may vary depending upon:

- The current market.
- Changing trends over time.
- The range of activities to be catered for.

### Studio Formats

#### Multi-Purpose Exercise Studios

Studios will be required to include for movement & exercise activities e.g.: aerobics, keep fit, circuit training, yoga, Pilates and boxing aerobics.

The following table gives minimum dimensions and heights for a range of exercise types.

<b>Exercise Type</b>	<b>Dimensions L x W x H</b>
Movement (Small Groups)	12 x 9.1 x 4.5m
Rhythmic Gymnastics	14 x 14 x 9 - 15m
Movement (Average Groups)	12 - 15 x 12 x 4.5m
Movement (Large Groups)	21 - 24 x 12 x 6.1m

**Table: Multi-purpose studios - Minimum dimensions**

*It is vital that providers or operators identify the programmes they intend to provide at an early stage.*

A multi-purpose studio of either 15 x 12m or 15 x 15m will provide a general purpose space accommodating a wide range of activities for movement and exercise.

Although studios larger than those shown in the table could be used, consideration should be given to the maximum size that will suit a single class. A single large space should not be used for multiple activities simultaneously, unless division is achieved through the use of robust acoustic folding partitions.

**Dance Studios**

The following table gives minimum dimensions and heights for a range of dance types.

<b>Dance Type</b>	<b>Dimensions L x W x H</b>
Small practice studio (12 to 15 person)	9 x 9 x 3.5 - 4.5m
Standard dance studio (30 to 35 person)	12 - 15 x 12 15 x 4.5m
Large dance studio	15 x 17 x 5m
Large scale rehearsal studio. Specialist studio for large scale ballet companies or large scale events.	21 - 24 x 12 x 6.1m

In addition to the requirements for a standard studio (noted above) a dance studio will require:

- Wall mirrors and a fixed barre for balance

exercises

- Additional loose mobile training barres, with adjustable heights to cater for younger dancers
- A Piano or other musical equipment
- Adequate secure storage for loose / mobile equipment and musical equipment



**Spinning Studios**

Spinning classes generate substantial noise and activity disruptive to other users. Spinning should therefore be separated from the main gym and held in a separate studio.

Dedicated spinning studios are preferred as the equipment can be bulky and awkward to store. These can be smaller than exercise studios, as there is no extended movement, other than for getting on, off and general circulation around the equipment.

*Spinning classes generate substantial noise and activity disruptive to other users. Spinning should therefore be held in a separate studio.*

Spinning studios may require specialist lighting, projection or plasma screen TV's and audio systems.

**Yoga and Mat Based Pilates Studios**

Dedicated Yoga and Pilates studios require a softer environment. Consideration should be given to:

- Dimmable lighting
- Blinds to cut out natural light and provide

privacy.

- Mats and soft floor coverings
- Adequate storage provision



Periods of quiet will be necessary, adequate acoustic separation from other spaces will be important.

A studio of either 15 x 12m or 15 x 15m will provide a general purpose space accommodating a range of mat based activities such as yoga and Pilates.

**Martial Arts Studios**

A wide variety of martial arts are practiced by all ages. They are practiced for fitness, development of combat and self-defence skills, self-cultivation/meditation, mental discipline and character development.

**Martial Arts**

Major clubs and training for national competition may require a dedicated martial arts facility, designed to meet the particular needs of the relevant martial arts governing body. These facilities are beyond the range of this guide.

However, for recreation, training and small club practice a multi-purpose studio of appropriate size will adequately meet most practice needs.

*When sizing a studio for a range of activities, the governing body's requirements should be taken into account.*

Most martial arts need only matting as additional equipment as they are mainly forms of 'unarmed combat'. However, some of the arts utilise stylised weapons, e.g. bamboo swords in Kendo. The weapons along with body armour would require additional storage.



When sizing a studio for a range of activities, the governing body's requirements should be taken into account, as shown in the following table. A studio size of 15 x 15m with a height of 4.5m will meet most practice needs.

Where the combat area of a particular martial art is permitted to extend to the edge of the room great care should be taken. Padding should be provided to walls, columns and any projections. Doors should open outwards, with handles flush with the door face.

Ceiling light fittings and speakers need to be considered in the design, and should be flush.

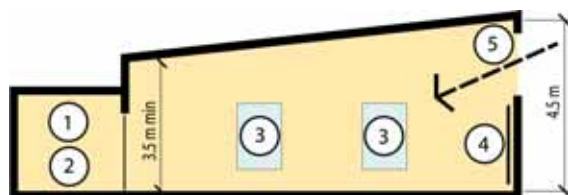
Martial Art Type	Area/Mat size Dimensions	Safety Zone	Total space required
Aikido	9m x 9m	1m margin, with 2m on one side	11m x 12m 3m high
Chinese Martial Arts Wu Shu set and traditional routines	14m x 8m for routine exercises	-	14m x 8m x 3m high
Judo	6m x 6m (junior)	3m on all sides	10m-12m x 10m-12m 4m high
	8m x 8m (senior)	3m on all sides	12m-14m x 12m-14m 4m high
Jujitsu	10m x 10m combat area 16m x 16m total mat area	1.2m-2m on all sides	18.4 - 20m x 18.4 - 20m 3m high
Karate	10m x 10m	1m margin, with 2m on one side	12m x 13m 3.5m high
Kendo	9 x 9 m - 11m x 11m (no matting)	1.5 – 2m margin, with 2m on one side	16m x 17m 4.5m high
Taekwondo	8m x 8m	2m on each side	10m x 10m 3.5m high
Tang Soo Do	8m x 8m combat area, 10m x 10m total mat area	3 – 4m on each side	14-16m x 14-16m 3.5m

Martial arts require soft matting on a sprung floor. If a multi-purpose studio is used, the matting will need to be removed when the studio is used for other purposes. The mats tend to be thick and heavy and are normally stored on trolleys to allow speedy movement.

Storage will therefore need to be designed to cater for the matting and trolleys.

**Studio Shape**

The studio should preferably be square, or rectangular with a length to width ratio of approximately 3:2. Instructors generally stand facing the users on the long side of the studio. Columns, projections and splayed walls should be avoided for safety. Recessed areas can be utilised for audio equipment, musical accompaniment or spectator viewing if required.



- 1. Secure Store Room
- 2. Store room (open for ease of access)
- 3. Low level windows with blinds for privacy
- 4. Wall mounted mirrors & Barre (as required)
- 5. High level windows (blinds required for low lighting or solar control)

**Section through studio**

**Typical Usage**

Studio classes may be booked as:

- Per session.
- Block booked session.
- Part of a Membership system.

Access may be initially controlled from main reception however, further access control may be needed directly at the studio entrances.

Space immediately outside the studios should be sized to allow users to wait whilst the previous class ends and empties. Though stretching and warm-up exercises are normally part of a studio session, users may also prefer a designated area outside the class for pre-warm up.

**Storage Allocation**

Adequate secure equipment storage is essential in order to provide a range of classes. For multi-purpose studios, equipment may need to be stored or retrieved between classes quickly and with ease.

Type of Space	Storage Details	Area	Critical Height
Studios	Mats (flammable material 1 hr fire resistance). Steps, Pilates boards. Balance balls/ stabilisers. Audio visual system. Crèche equipment.	15 m <sup>2</sup> minimum 10% floor area preferred	2.4m minimum ceiling height. Height as main room preferred
Spinning room	Audio visual system	2 m <sup>2</sup> minimum 5 m <sup>2</sup> preferred	N/A

### Space required for storage of equipment (studios)



The proportions and size of each store should be considered to maximise the storage capacity and access arrangements. The table above provides guidance on sizing storage. However storage should be designed upon actual equipment requirements, making allowance for large, bulky and heavy items e.g. 2 x 1m floor mats stored on trolley

### Studio Design and Finishes

#### Daylight and Views

Natural lighting within a studio provides a beneficial environment. Views may be external or internal. Internal views e.g. through to reception, pool or sports hall, may help to

visually link spaces within the facility.

Solar glare, thermal gain and privacy will need consideration, particularly for quieter sessions including yoga and relaxation classes. The provision of blinds to windows and internal screens allow control and creation of softer or lower lighting levels.

Spinning rooms may also use blinds for sessions using projection.



Spinning room layout.

#### Floors

The floor structure must be able to resist any dead loads imposed along with the potential for high live loads from:

- Users.
- Dynamic effects (harmonic vibration e.g. users moving in synchronisation to music – particularly aerobics and other forms of dance).

Reference to British Standard BS 6399: Part 1 is essential.

The performance of the studio floor should

consider the following:

- Be smooth, slip resistant and splinter free
- Be warm to the touch
- Have a resilient shock absorbent surface resistant to permanent deformation under long term repeated cycles
- Ease of cleaning and maintenance
- Long service life suitable for the variety of activities it will be expected to take on

A wide variety of differing floor systems are available, but all should be considered for their compliance with BS 7044: Part 4 and BS EN 14904: 2006. Refer to the Sport England guidance note 'Floors for Indoor Sports' updated in 2007 for further information<sup>5</sup>

Consideration should also be given to the variety of intended activities that each studio is expected to provide. Users may be barefoot, or be wearing soft or hard shoes. This range of activities may significantly impact upon the floor chosen.

The potential for conflicting requirements may require the use of temporary overlay flooring e.g. mats for martial arts. The permanent floor finish should be selected to suit the primary activities within the studio. Any temporary overlay flooring will need to be stored with relative ease and speed when not in use, to maximise studio use.

Studio floor finishes may be more liable to surface damage e.g. scratching, due to trafficking of dirt into the building. The following should be considered in order to reduce the risks:

- Consider additional matting at the entrance to the studio area.
- Seal or provide finishes to walls or ceilings that could be a source of dirt.
- A regular cleaning regime is implemented by the operator as required within manufacturer's instructions.

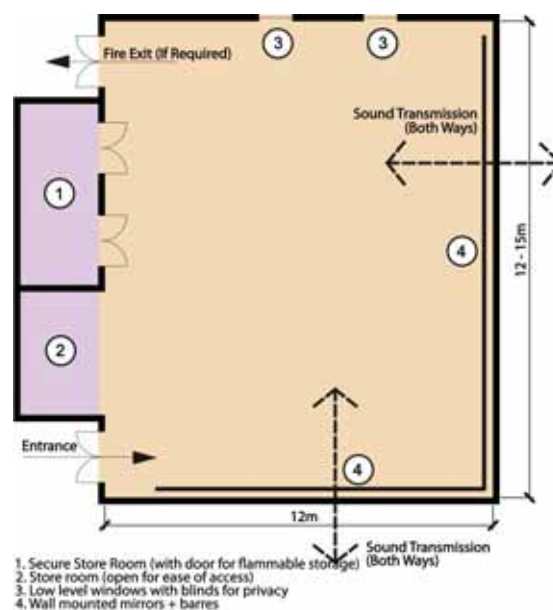
## Walls

Finishes should take account of the ease of cleaning and maintenance. Scuffing by moving equipment and users may be a particular issue.

**Walls must be able to safely support any wall fixed exercise equipment & mirrors. The use of hollow concrete blocks should be avoided.**

Users may also use walls during stretching exercises. Therefore, sharp edges and wall projections should be avoided. Where this is impossible padding should be used.

Walls must be able to safely support any wall fixed exercise equipment & mirrors. The use of hollow concrete blocks should be avoided.



## Typical Plan of Studio

### Mirrors

Mirrors serve to create an illusion of space and reflect natural light back into the space. Continuous mirrors should be provided on at least one side of each studio. Providing some manifestation markings on them can help the visually impaired.

The mirrors should be at least 2m high and meet with British Standard BS 6262. Mirrors should be securely fixed above skirting level, to avoid impact, e.g. cleaning equipment.

<sup>5</sup> Refer to Sport England design guidance available at <http://www.sportengland.org/floors.pdf>



Large continuous mirrors should not be directly fixed to walls but be fixed onto a rigid plywood backing board to avoid distortion. Point fixing mirrors should be avoided; stress points can cause failure of the glass. Mirrors should be bonded to their backing board or fitted to a metal carrier frame.

Mirrors should preferably be positioned behind the instructor, allowing users to see themselves during a session. Avoid placing mirrors on opposite walls as this will cause an 'infinity' effect.

If arts activities are to be included within the space, consider incorporating black out blinds for dance and drama performances.

**Ceilings**

Studio ceilings should be carefully considered to:

- Support integrated or hanging fixtures e.g. loud speakers, ventilation grilles, general or spot lighting.
- Allow easy access to building services located above the ceiling.
- Provide the necessary acoustic performance.
- Achieve the required aesthetic design sympathetic to the space and use.
- Provide the required minimum clear heights above the various activities.

When establishing the ceiling height, consideration should be given to activities that may use equipment to raise the user closer to the ceiling (e.g. step classes), or the need to swing equipment (e.g. Kendo). The recommended minimum headroom varies, but for flexibility, the ceiling height should be at least 4.5m. The increased headroom enhances the studio space, increases flexibility and widens the range of activities that can be accommodated.

**Acoustics**

Acoustic performance of a studio is critical due to the need for:

- Hi-fidelity sound production for both music and speech.
- Loud music and amplified speech.
- Different requirements for the space depending upon the activities taking place.

***An acoustic consultant should be consulted to consider specific proposals and give project specific advice.***

Some activities may require peace and quiet whilst others may produce high levels of music noise. Noise transmission between the studio and adjoining spaces (particularly if they too are studios) needs to be controlled by careful selection of forms of construction, materials and surface finishes.

Sound attenuation should be included within walls, floors and ceilings to achieve a noise level of NR35 (Yoga) or NR40 (Dance / Aerobics) within the studio.

It is strongly recommended that an acoustic consultant be consulted to consider specific proposals and give project specific advice at an early stage in the design process.

**5.0 Building Services**

**Environmental Requirements**

**Fitness Gym**

<b>Condition</b>	<b>Recommendations</b>
<b>Air temperature</b>	16 -18°C. A rise in temperature may be acceptable in summer, however, comfort cooling will be essential in most cases as heat gain is likely to be significant and strict temperature control is needed. The controls must be capable of wide variation and have the capacity to react swiftly.
<b>Humidity</b>	Preferably below 60%. Humidity control is not essential provided good fresh air rates and comfort cooling is provided.
<b>Ventilation</b>	A minimum of 20 litres/sec/person fresh air based on peak occupancy. The system's air quantity will be determined by room loading and will include provision for free cooling. The system must be able to cope with heat loads, body odours and humidity. Heat recovery should be incorporated to reduce energy loads and running costs.
<b>Artificial lighting</b>	200-300 lux with a good uniformity ratio. Free weight areas require an overall minimum average of 300 lux. Any signs, wall charts need to be clearly visible. Lighting can be used to create mood, if required. Indirect or direct lighting schemes can create a softer and warmer atmosphere. An emergency lighting system will be required.
<b>Natural lighting</b>	Recommended with views to the outside. Windows may need blinds to filter light and provide privacy. Glare from windows or roof lights should be controlled
<b>Noise levels</b>	Noise rating of NR40 approximately

**Studios**

<b>Air temperature</b>	18°C. A rise in temperature may be acceptable in summer, however, comfort cooling should be considered where heat gains are likely to be high or strict temperature control is needed. The controls must be capable of wide variation and have the capacity to react swiftly. Heating and ventilation systems should be acoustically damped so as not to interfere with quiet uses, such as Yoga.
<b>Humidity</b>	Preferably below 60%. Humidity control is not essential provided good fresh air rates and comfort cooling is provided. The controls must be capable of wider variation than normal and have the capacity to react swiftly.
<b>Ventilation</b>	A minimum of 20 litres/sec/person fresh air based on peak occupancy. The system's air quantity will be determined by room loading and will include provision for free cooling. The system must be able to cope with heat loads, body odours and humidity. Heat recovery should be incorporated to reduce energy loads and running costs.
<b>Artificial lighting</b>	200-300 lux with a good uniformity ratio. Any signs, wall charts need to be clearly visible. Lighting can be used to create moods if required. Indirect and direct lighting schemes can be designed to complement the space and create a feeling of wellbeing. Lighting should be separated or zoned according to type or location, each zone separately dimmable to create different effects appropriate for the use; high energy, low impact and stretching routines.
<b>Natural lighting</b>	Preferable, with views to the outside. Windows may need blinds to filter light and provide privacy. Glare from windows or roof lights should be controlled.
<b>Noise levels</b>	Noise rating of NR40 acceptable for dance activity, but NR35 recommended for Yoga and similar use.



**Audio, Visual and Electrical Equipment**

**Gym**

Audio and visual equipment integrated into Cardio-Vascular equipment, has been covered previously. However, some users may prefer to listen to music and public address through wall or ceiling mounted loud speakers.

A portable hearing induction loop should be available for use in gyms and studios for use by those using hearing aids.

Controls for television channels and ambient music should be situated away from public areas and be controlled by staff.

The location of power, data and speaker cables should be built into the walls, terminated in flush sockets and be carefully coordinated with screen and speaker locations to minimise visible cabling.



**Controls for audio/visual systems on equipment.**

Wall sockets should be provided throughout the fitness gym area for cleaning equipment, and be positioned so that they will not be subject to damage.

**Studios**

Each studio will require its own sound system with controls accessible to the class tutor. If a member of staff needs access to the system many times in a class, it may be worth providing a sound system that can easily be moved in a position near to them. Consideration needs to be given to the positioning of the power and feed to both speakers & any other screen. Wall sockets should also be provided throughout the fitness gym area for cleaning equipment.

Some classes such as spinning have additional power requirements such as projectors, screens and lighting effects, and these need to be established and catered for.

**Lighting**

The selection and location of light fittings should take into account the ambience and creation of moods as desired.

Indirect lighting schemes can create a softer and warmer atmosphere than a standard direct fluorescent scheme. Consideration should be given to the selection of efficient low energy fittings to minimise power consumption and heat output.

Care should be taken to avoid direct glare from spotlights and down-lighters. The effects of mirrored walls on the lighting design should also be taken into account.

Lighting controls should be situated away from public areas and be controlled by staff.



**Lighting should create ambience and moods.**

## 6.0 Appendix

### Glossary of Terms (alphabetical)

**Aerobics** – Aerobics, literally means ‘with oxygen’. Aerobics consisting of rhythmic exercise, stretching and strength training forces the body to use more oxygen whilst conditioning the heart and lungs. Aerobics is typically practiced in a class situation, with music and an aerobics instructor. ‘Aerobics’ was coined in 1968, to describe a series of exercises used for training astronauts, devised by US Air Force physicians. It became a popular form of exercise for the general public in the 70’s growing to encompass many variations. In 1990, the first World Aerobics competition took place, involving 15 countries.



**Cardiovascular (or CV)** ‘Cardio’ derives from the Greek ‘kardia’: meaning heart. It is used to exercise the circulatory and respiratory systems (e.g. heart and lungs). Good cardiovascular fitness reduces the risk of a stroke, high blood pressure and diabetes; it will also improve performance in most sports. The CV equipment is designed for continuous use, raising both pulse and respiration rates, to stimulate blood flow around the body, strengthen heart muscle and increase lung capacity, thereby improving overall fitness and well being.

The first treadmills for health purposes were designed in 1952, followed by exercise cycles in 1965. As early as 1968 the machines were

being linked to computerised systems that provided feedback & interactive programs.

**Cross training** - Refers to the combining of exercises to work various parts of the body. It is a workout that includes cardiovascular and endurance exercise. Cross training is a "balanced" fitness program alternating exercises within the workout, or throughout the week. Exercising various muscle groups help muscles adapt more easily to new activities; this is practiced by many serious sportsmen.

**Fitness Gyms** - provides aerobic and body toning fitness exercises carried out using a range of specialised equipment. The Fitness Gym may be zoned into specific areas for stretching, cardio-vascular, resistance and free weight areas.

**Fitness Program** - A fitness program is a service offered in most fitness centres. New fitness gym users are assessed by qualified instructors, and a program written for the individual that takes into account their aims, abilities and requirements. This workout will usually include stretching exercises, cardiovascular workout, and a list of resistance equipment to use. The user can then use this information to reach set goals, and the instructor will reassess and rewrite the program at intervals.



**Free weights** - Free weights is a generic term for a range of hand held weights of either ‘dumbbells’ (usually single handed weights) or ‘barbells’ (two handed weights). Free weights are used for exercising small muscle groups, e.g. synergist and stabiliser muscles. A free weights area may be included as a part of the fitness gym or may be provided as a separate dedicated space.

Free weights offer a wider variety of uses than resistance machines. They allow movement in three dimensions and use more than one muscle group at a time.

**Group exercise bikes** - a group of stationary upright bikes arranged around a central focus point. Exercise groups follow instructions from an instructor. Spin bikes have fixed hubs requiring constant effort without coasting. American cyclist Johnny 'G' Goldberg created Spinning, in the late 1980's. He used it as a convenient and quick way to train for races. The first centre was opened in 1989.

**Health and Fitness Suite** - provides a range of activities aimed at promoting and improving health and fitness through aerobic and body toning exercise. A health and fitness suite may include a fitness gym, studios, and complementary services.



Health and fitness suites are a modern day response to the sedentary lifestyle that our technological age has created. In the past Governments have required certain levels of physical education within schools, but beyond school age it becomes the individual's responsibility to maintain fitness & health. Health and fitness suites provide the alternative to team sport, in an indoor environment.

**Pilates** – A set of precise controlled stretch and balance exercises designed in the late 20<sup>th</sup> century by Joseph Pilates, to strengthen the core muscles and support the spine. Pilates can be used for fitness and strength, or for rehabilitation. Top ballet dancers, Rugby players and other sportsmen use Pilates as a physical conditioning tool.

Pilates teaches awareness of breathing and alignment of the spine. The exercises can be mat based, or use specialist equipment.

**Resistance** - exercise of specific muscle groups through the use of specialised equipment

allowing controlled movement of part of the body against a resistance provided by hydraulics, counter-weights, springs/bungee bands or friction. The equipment may be bulky and heavy, but offers a safer and more controlled alternative to the free weights. The first resistance work out machine was available in 1970, after many years of experimentation by the entrepreneur Arthur Jones.



**Strength and Conditioning** - Strength and conditioning is utilised by athletes and sportsmen to improve their physical and psychological performance. Athletes are measured and tested and a program devised to improve specific sports fitness demands. All aspects of the fitness program is designed to build strength, conditioning, anaerobic endurance and size of skeletal muscles.

**Stretch Area** - used before and after exercise to allow muscular warm up and warm down stretching helping to reduce the risk of injury. Specific exercises may be advised for each part of the body, and include balance and floor work on padded mats.

**Studio Spaces** - Studios accommodate a range of uses, allowing users to participate in a range of disciplines. Studios can accommodate:

- Exercise
- Dance & movement e.g. aerobics
- Sport training e.g. martial arts
- Arts
- Social activities

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