



# Swimming Pools

Updated Guidance for 2013



### Foreword

Sport England believes that good facilities are fundamental to developing sporting opportunities for everyone, from the youngest beginner to the international class athlete. The buildings, whether large or small, can encourage civic pride and assist the process of revitalising deprived neighbourhoods. Facilities that are well designed, built to last and well maintained are a pleasure to use and give an ample return on the time and money invested in their construction and day-to-day use.

Good design needs to be based on a sound understanding of the current trends and practices within individual sports, developments in the sport and leisure industry and the lessons learnt from previously built schemes.

It is essential that this is embraced from the beginning of a particular project and included in the initial briefing stage through to the final detailed specifications and operational arrangements.



**A well-designed pool can attract swimmers**

Sport England Design Guidance Notes aim to promote a greater general understanding of overall design concepts, an appreciation of technical issues as well as the critical factors that need to be considered in reaching the appropriate solution for a particular project. They also advise where further information, advice and expertise may be found and point to benchmark examples.



### ***Sport England's Design Guidance Notes aim to:***

- ***Increase awareness of good design in sports facilities***
- ***Help key building professions, clients, user representatives and other stakeholders to follow best practice***
- ***Encourage well-designed sports facilities that meet the needs of sports and are a pleasure to use.***



### Contents

<b>1.0 Introduction</b>	3		
• National statistics			
• Trends			
• Condition and public expectation			
• Partnership and cooperation			
<b>2.0 Strategic Definition</b>	5		
• Financial sustainability			
• Leisure features			
• Strategic issues			
<b>3.0 Preparation of the Brief</b>	7		
• Key considerations			
• Size and shape of water			
• Levels of competition			
• Pool capacity			
<b>4.0 Concept Design</b>	11		
• Location and site evaluation			
• Site planning			
• External design			
• First impressions			
• Organising the building			
<b>5.0 Developed Design Considerations</b>	19		
• Public areas	19		
o Entrance area			
o Reception desk			
o Refreshment areas			
o Public toilets			
o Accommodation for children			
• Pool hall	23		
o Structural approach			
o Glazing			
o Artificial lighting			
o Signs			
o Configuration			
o Combining two pool tanks in one hall			
o Privacy for some user groups			
o Pool surround requirements			
o Easy access to the water			
o Movable floors and bulkheads			
• Changing facilities	34		
o Key design issues			
o General planning principles			
o Changing layouts			
o Analysis of types of changing room layouts			
o Benches, coat hooks and lockers			
o Toilets			
o Showers			
o Vanity areas			
o Calculating numbers			
o Changing room calculation example using the 'Standard Method'			
o Ancillary accommodation	46		
o Office accommodation			
o Staff room and changing			
o Cleaners store			
o External service yard			
o First aid room			
o Pool equipment store			
o Spectator and competitor provision	48		
o Sight line geometry			
o Accessibility			
o Seating types			
o Conflict with the need for privacy			
o Environmental conditions			
<b>6.0 Use and Aftercare</b>	50		
• Key operational/design issues			
• Key maintenance issues			
o Entrance control			
o Ceramic tiling			
o Showers			
o Washing down			
o Drainage channels			
o Stainless steel			

### Appendices

1. Pool types and technical design issues:
  - o Main/competition pools
  - o Learner/learner training pools
  - o Diving pools
  - o Leisure pools
2. Servicing the building
3. Construction and specification considerations
4. Improvement and alterations to existing swimming pool buildings
5. Further information:
  - o Legislation and standards
  - o References
  - o Related organisations

### 1.0 Introduction

This Design Guidance Note outlines the basic principles and concepts of good swimming pool design. It is aimed at all those involved in developing swimming provision, points to further information and gives a number of best practice examples.



Swimming is second only to walking as the nation's most popular physical activity with over 22% of adults and 50% of young people taking part on a regular basis<sup>1</sup>. It is ideally suited for people with disabilities and the elderly or infirm who might have difficulties with other forms of exercise.

***Swimming can be enjoyed by people of both sexes across all ages and abilities and is recognised as being uniquely beneficial to the nation's health and well-being.***

Swimming and water safety is an essential life skill. As part of the National Curriculum, it can encourage fitness and good health practices amongst young people. It is regarded as an essential part of children's education for the safe enjoyment of most water activities and an understanding of the wider environment around them.

<sup>1</sup> Sport England Active People Survey.

Swimming, like all other sports, can play a significant part in community regeneration and new or refurbished pools can provide much valued facilities that make an important contribution to community cohesion and general health and well-being.

### National statistics

It has been estimated<sup>2</sup> that there are almost 1,400 swimming clubs and associations in England ranging from small clubs which concentrate on the teaching of swimming to the very large clubs involved in competition in swimming, diving, synchronised swimming, water polo, open water and disabled swimming. These voluntary organisations provide the foundations for competitions at all levels and the development of talent. Swimming pools also provide for a wide range of other activities from aqua-aerobics to sub-aqua training, and most commonly simple recreational and fitness swimming.

It is also estimated<sup>3</sup> that there are almost 4,614 separate swimming pools sites in England with a total water area of 872,910 m<sup>2</sup>. Approximately 25% of this water area is provided by the education sector, 46% by local authorities (or trusts) and 26% by the commercial sector. The stock of pools is in various forms:

- Indoor or outdoor
- Free-form or rectangular
- Heated or unheated
- Associated with hotels, health clubs, water parks, beaches and other private operations.

### Trends

In recent years, England has seen a growth of commercial pools to the point that, in numerical terms, they are now almost equal to the numbers of Local Authority pools. However, the commercial pools tend to be small in size and have shallower water, being aimed primarily at the fitness/aerobic/recreation market. They tend to offer a reduced programme of activities and have restrictive pricing. They are less likely to allow for competition swimming or teaching. The trend for the education sector is to be a diminishing provider of swimming facilities.

<sup>2</sup> ASA 'From Arm Bands to Gold Medals' 2001/2.

<sup>3</sup> State of the Nation Facility Report – Swimming Pools – November 2007.

### Condition and public expectation

It has been acknowledged by Government that public swimming facilities in England have generally suffered from underfunding and need constant maintenance and repair, placing many under threat of closure<sup>4</sup>.

Only a few of the Victorian municipal baths, once the pride of Britain's big cities, remain. In addition, hundreds of council pools built in the 1960s and 1970s are close to the end of their economic lifespan. Local Authorities are often faced with difficult decisions to close pools despite strong local opposition. In some cases, these are buildings of historical and architectural importance<sup>5</sup>.

There are also considerable pressures on schools where the majority of pools were built in the 1960's and early 1970's, many to a poor standard. Schools face logistical problems, additional costs, health & safety issues and time and staff training issues in delivering the national curriculum.

#### **Best practice includes:**

- **New community pools that cater for school needs**
- **Existing public and commercial pools being shared between schools and the wider community.**

In contrast, the last decade saw a growing number of lottery funded swimming pools. Modern design, together with more attractive internal features and greater attention to customer's needs, has created a step change in pool provision. The Active Places data files<sup>6</sup> show that since 1996, some 56% of the national stock has been built or benefited from some degree of refurbishment. However, the likelihood of significant lottery funding being available in the immediate future is doubtful.

<sup>4</sup> DCMS Spending review 2010.

<sup>5</sup> *Great Lengths: The historic indoor swimming pools of Britain*. English Heritage.

<sup>6</sup> Now under SPOGO at <https://spogo.co.uk/developer-area>

### Partnership and cooperation

Careful consideration needs to be given to the overall justification and briefing for swimming provision.

Schools, local education authorities, health agencies and local government should seek to work with members of the wider community to capitalise on knowledge, experience and resources. They should seek to establish clear swimming strategies.

Existing pool provision in any particular area may need to be rationalised; schools with existing pools might share them with other schools and the wider community; pools being refurbished or replaced should consider the needs of the entire community.

The 'Swimming Charter 2003' published by the Department of Children, Schools & Families (DCSF) and the Department of Culture, Media and Sport (DCMS) gives various case studies where swimming has been provided on a community basis to allow school swimming to move beyond the essential minimum requirement of Key Stage 2 of the National Curriculum<sup>7</sup>.

There is also an impressive core of organisations concerned with development, management and safety issues. See the *Related Organisations* section in Appendix 5.

#### **Good design can:**

- **Maximise customer appeal**
- **Allow flexibility for maximum programme options**
- **Provide efficient and well organised circulation**
- **Minimise staffing levels whilst allowing the effective management of health and safety**
- **Help achieve sustainability and be responsive to environmental issues**
- **Minimise cleaning and maintenance requirements**
- **Reduce the footprint and volume**
- **Help achieve financial sustainability.**

<sup>7</sup> School swimming activities are covered in the National Curriculum and in the ASA School Swimming Manifesto.

### 2.0 Strategic Definition

Public swimming pools are unusually demanding buildings that require considerable investment to design, build and be operated by well-qualified staff. Much of the plant must operate continuously 24 hours a day over 365 days a year under stringent health and safety requirements to ensure safe and supervised use. They have high energy needs in operation and must be carefully designed to conserve energy. They contain aggressive chemicals in moisture-laden atmospheres and require careful design using high quality materials and appropriate plant and equipment.

The full environmental impact of such buildings through their life cycle should be carefully considered and it is recommended that the BREEAM assessment method be adopted<sup>8</sup>.

Pools outside the public sector, though possibly less intensively used, must also achieve safe and acceptable operating conditions.

Current health and safety legislation will need to be carefully considered in respect of both the design and operation of a pool<sup>9</sup>. All new pools will need to be designed to take account of European standard *BS EN 15288:2008 Parts 1 and 2*. See also *Legislation and Standards* section in Appendix 5.

*The Construction (Design and Management) Regulations 2007 (CDM 2007)* in conjunction with the *Health and Safety at Work Act* and *BS EN 15288-1:2008* identify the need to consider the abilities of the project team. The team should include designers, client, operators and contractors with sound experience and expertise with similar projects in both scale and type from the outset. Refer also to the Sport England / CABE document *'Better Places for Sport'* available from the Sport England web site.



<sup>8</sup> The Building Research Establishment Environmental Assessment Method (BREEAM) includes leisure buildings. <http://www.breeam.org/podpage.jsp?id=388>

<sup>9</sup> Health & Safety Executive's (HSE) document *HSG179 Managing Health & Safety in Swimming Pools'*, PAS 39, PAS 65, *PWTAG Swimming Pool Water 2009* and *Code of Practice 2013* and *BS EN 15288-2:2008*.

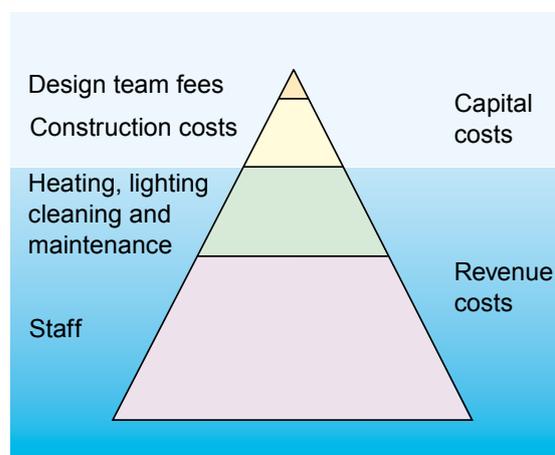
**Establish a strong project team including client, designers, operator and contractors with sound experience and expertise from the outset.**

**See Sport England's 'Affordable Community Swimming Pools'.**

#### Financial sustainability

Even the best designed public pools are likely to be run on a subsidised basis and it is important to consider the long-term financial sustainability from the outset. The initial capital costs and the ongoing operational costs should be balanced with the benefits that will be offered.

There are strong arguments for swimming pools to be combined with other facilities such as health and fitness facilities. This way they produce an income stream, without incurring excessive additional running costs, in order to offset subsidies and to achieve economies of scale. It is essential that realistic business planning runs in tandem with the planning and design processes.



**Figure 1 Cost pyramid: Value for money is essential - Invest in good design and specification to reduce whole life costs (staff, maintenance, repair and running cost) - Ensure adequate maintenance budgets are available**

### Leisure features

A number of pool facilities include leisure water features that are designed to increase appeal and attract custom. These may include:

- Varying water depths, with extensive shallow or beach areas
- Wave pools and surfing pools
- Water slides and flumes
- Fast flowing river rides & rapids
- Water jets and water cannons
- Water features e.g. rain showers
- Spa facilities, including varying temperatures
- Children's wet play equipment
- Feature lighting and sound, to introduce a more theatrical environment
- Theming, to increase excitement and appeal.

Larger scale leisure centres are usually planned as 'destination' facilities that attract people from a wide catchment for a 'day out' experience.

Detailed information on leisure features is outside the scope of this guidance, but some further information is included in *the Leisure Pools* section of Appendix 1.



### Strategic Issues

The following strategic issues need to be considered for a proposed development:

- Local Authority's leisure/recreation strategy and sports development initiatives?
- Sporting objectives; for example, the impact on local community participation or the significance on a wider catchment of specialist training and competition features?
- User profiles of the catchment area; who / how many will use it and when, and over what size of catchment area?
- Whether the local need can be met elsewhere or by other means; for example, by upgrading or extending an existing pool?
- The impact on existing facilities<sup>10</sup>?
- Crucially, if client groups have liaised with their Local Authority, their regional Sport England office, and advisory bodies such as the Amateur Swimming Association (ASA) to determine:
  - Whether there is a local strategy for swimming pool provision that covers the area?
  - What type and size of facility is recommended for their particular location?

Sport England's *Local Sport Profile Tool*<sup>11</sup> is aimed at those involved in the development of sport in their local community and sustainable community strategies. This is a new tool that replaces the 1999 publication *Planning Across Boundaries*.

***A swimming development strategy is essential to set out the context of sporting and management objectives for any new provision.***

***Ensure that balanced decisions are made about need and financial resources.***

<sup>10</sup> Sport England's *Active People Survey* has segmentation data available from late 2007. See: [http://www.sportengland.org/research/active\\_people\\_survey.aspx](http://www.sportengland.org/research/active_people_survey.aspx)

<sup>11</sup> See: [http://www.sportengland.org/support\\_advice/local\\_government/local\\_sport\\_profiles.aspx](http://www.sportengland.org/support_advice/local_government/local_sport_profiles.aspx)

### 3.0 Preparation of the Brief

#### Key considerations

After the strategic issues have been consolidated, information needs to be gathered in a logical, methodical way to develop a *Statement of Requirements (SOR)* that will inform the brief for the design team. This will be used to build the business case for the development and assist in making well-informed decisions that will stand up to challenge and scrutiny. The SOR will then be used to appoint a design team who will take the project forward with the main project team.

Key questions include:

- Who will be the principal users?
- What activities need to be accommodated?
- What are the requirements for the type, size and depth of pool(s)?
- How many people will use the pool at any one time?
- Will the pool(s) be used for competitive events? If so, what activities to what levels?
- Is spectator viewing required? If so, what extent of accommodation can be justified?

Pool users may comprise a combination of the following groups:

- Local community including ethnic/cultural groups
- Schools
- Swimming clubs
- People with disabilities
- Older people
- Carers with babies and young children.

The main types of activity are likely to be:

- Recreational swimming
- Learning to swim, including water-acclimatisation for young children
- Fitness swimming e.g. lane swimming and aqua aerobics
- Training
- Competitive swimming.



Other activities may include:

- Diving
- Water polo
- Synchronised swimming
- Canoe practice
- Life saving practice
- Sub-aqua training
- Underwater hockey
- Leisure activities
- Private parties.

Nearly all of these activities can be accommodated in a standard 25 m (or 20 m)<sup>12</sup> community pool with depths ranging from 0.9-1.8 m, by simply dividing the area with floating lane markers.

***It should be recognised that new, replacement or refurbished pools, meeting present day standards, have the effect of increasing use.***

<sup>12</sup> More suitable for school sites or remote rural locations.

### Size and shape of water

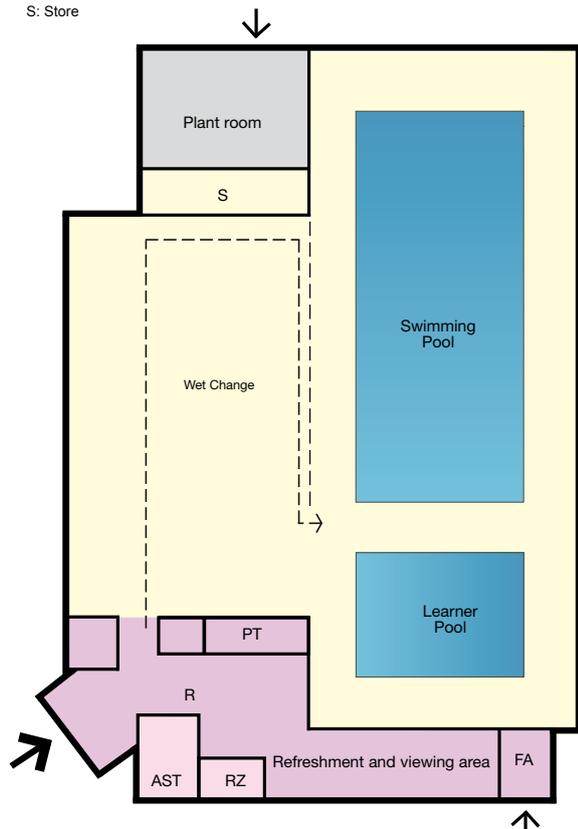
Many small pools will be used solely for recreational and fitness swimming and will not necessarily need to strictly follow the ASA recommendations. It is generally recommended that standard dimensions should be used to allow appropriate levels of competition and training and to help meet safety standards. However, relatively few pools need to be designed to full competition standards or include spectator facilities<sup>13</sup>.

Single community pools should have a minimum shallow water depth of 0.9 m (if there is no learner pool) and a deep end of 1.8 m or 2.0 m. Where a learner pool is provided, the shallow water depth of the main pool should be increased to 1.0 m in order to better cope with tumble turns.

***If the proposed pool water area is too small, it will be under constant pressure during busy periods.***

***Conversely, pools that are oversized may be underused, less cost-effective and likely to result in greater financial deficit.***

Key:  
 AST: Attendant staff accommodation  
 FA: First Aid  
 PT: Public toilets  
 R: Reception  
 RZ: Refreshment Zone e.g. vending, kitchen  
 S: Store



**Figure 2 Diagrammatic layout of a community swimming pool facility with a 4-lane 25m main pool and secondary (learner) pool with minimum circulation and good visibility of all key features incorporating a viewing area**

Training for competition, low-level synchronised swimming, and water polo can all take place in a 25 m pool, and with modest spectator seating, the pool will also be able to accommodate competitive events in these activities, to the same level.

Diving from boards, advanced synchronised swimming and more advanced sub-aqua training require deeper water. These can all be accommodated in one pool tank, which ideally should be in addition to the main swimming pool. A dedicated tank for deep-water use may be an essential requirement for some activities at certain levels of competition.

The provision of separate water areas for different activities is, however, unlikely to be a cost-effective solution and difficult to justify, except where competition is a specific requirement. A more economical approach is to include a movable floor(s) and bulkhead(s)<sup>14</sup> to divide a single pool tank and create separate pool water areas of different depths. This allows greater use and programming flexibility. There are many ways such features can be configured and these are discussed in more detail from page 32 on.

Early advice should be sought from a range of manufacturers/suppliers on the overall design implications of integrating their plant/equipment into a design and a cost comparison should be carried out to determine the most appropriate option.

<sup>13</sup> Further advice on spectator seating is given on page 48.

<sup>14</sup> Also referred to as booms.



### Levels of competition

A new pool should be designed to meet the various needs of all the community it serves. In most instances, designing for community use will allow the pool to be used by one or more of the 1,400 clubs which are a member of the Amateur Swimming Association (ASA).

Where the pool is to be used for higher levels of competition, it may be necessary to consider the specific needs of the ASA and for major competitions, the requirements of the Federation Internationale de Natation Amateur (FINA)<sup>15</sup>. However these requirements do not prevent use by the general community.

Building elements affected include:

- Dimensions and tolerances of the pool tank(s) and pool surrounds
- Sectional profile and water depths
- Provision of ancillary water areas e.g. a learner pool that can double as a warm down pool
- Poolside equipment including timing and score board
- Diving facilities
- Spectator seating
- Support accommodation
- Standards of illumination and water treatment.

Consultation should occur early in the design process with the ASA and FINA as appropriate. Their facility rules are available from their web sites.

<sup>15</sup> Also known as International Amateur Swimming Federation: <http://www.fina.org/H2O/>

### ASA National Hierarchy<sup>16</sup>

The ASA's *From Policy to Pool* gives a framework for all publically accessible pools but stresses that regardless of the type of completion that can be held, all new pools should also meet a full range of community needs.

#### Swimming

- 50 m major competition pools
- 50 m (or 25 m) national/regional competition pools
- 50 m (or 25 m) national intensive training centres \*
- 25 m 8-lane county competition pools
- 25 m 6-lane community pools
- 20 m 4-lane small community or school pools
- Teaching/learner pools.

#### Diving

- High performance centres \*
- World-class training centres \*
- County and sub-regional development centres.\*

#### Water Polo

- International\* sized playing areas
- County and sub regional development centres, 25 x 12.5 m with deep water.

#### Synchronised swimming

- International competition pools
- County and sub-regional development centres.

\* It should be noted that terms such as high performance, world class, international, national and regional often refer more to the coaches and standard of athletes in development programmes run in particular facilities.



<sup>16</sup> See: *From Policy to Pool – An ASA policy document on swimming pools in England* <http://www.swimming.org/asa/facilities/management-advice-guidance/from-policy-to-pool-an-asa-policy-document-on-swimming-pools-in-englan/2805/>



**Maximising customer appeal should be a primary objective of any swimming pool design**

### Pool capacity

The number of people likely to use the pool at any one time needs to be estimated early in the planning and design process. The figures are needed to assess the number of changing room places required and for more technical issues such as the design of the pool water filtration plant. It will therefore be a key factor in establishing the total floor area of the building.

Pool operators often refer to the maximum number of bathers estimated to be able to use a pool at any one time as the 'maximum bathing load'.

The pool capacity will vary according to the particular programme session/activity and will be a function of the available water area. It will also be dependent on water depth and configuration, and appropriate risk assessments / operational arrangements to ensure safety being in place.

For un-programmed recreational swimming, a minimum water area (occupancy ratio) of 3 m<sup>2</sup> per bather should be allowed to ensure physical safety<sup>17</sup>.

<sup>17</sup> Health & Safety Executive's (HSE) document 'HSG179 Managing Health & Safety in Swimming Pools' 3<sup>rd</sup> Edition and PWTAG Swimming Pool Water 2009 and Code of Practice 2013.

Therefore, theoretically a 25 x 8.5 m 4-lane pool with a water area of 212.5 m<sup>2</sup> would accommodate a maximum swimmer capacity or 'maximum bathing load' of 71 bathers.

However, such figures should be used with caution and careful consideration should be given to the proposed programme of activities and likely demand. For example, for a strategic planning exercise or in the development of a realistic business plan or estimating the annual throughput of a building, a lower figure might be assumed<sup>18</sup>.

<sup>18</sup> The Sport England *Facility Planning Model* uses a figure of 6 m<sup>2</sup> per bather. The ASA use a figure of 11 m<sup>2</sup> of water per population of 1000 as a benchmark guide to Local Authorities for urban locations (assuming a 'pay and play pool' open to the public and discounting open-air pools and teaching pools).

### 4.0 Concept Design

#### Location and site evaluation

Before final selection of a site, it is essential that it is fully evaluated in terms of catchment, potential market and user demographics, as mentioned under the *Strategic Issues* section of Section 2.0.

A technical analysis should also assess:

- Space for the proposed facility and for future expansion
- Site constraints such as shape and contours and whether they can be used to reduce excavation or the visual impact of the proposed building
- The bearing capacity of the ground, soil condition and depth of the water table, particularly in relation to the pool tank and neighbouring buildings that may be linked to or be close to the pool building
- Accessibility for pedestrians, cyclists, cars, coaches, service and emergency vehicles and public transport
- Potential car parking for users and staff
- Location of existing public services and drainage capacity
- Links with existing recreational, sports and educational facilities in order to benefit from shared management and grouped facilities.

#### Site planning

Once a site has been selected, the position of the pool will depend upon a range of factors:

- Position of existing and new access roads and public utility services
- Orientation in relation to natural lighting and solar glare
- Visibility of the facility and how it complements its surroundings
- Car parking, including potential for overflow parking
- Access for service and emergency vehicles
- Soil sub-strata conditions and depth of water table obtained from the soil survey.



A facility should complement its surroundings

#### External design

Swimming pools cater for all sections of society: parents with children, schools, the elderly, ethnic groups and people with disabilities amongst others. The external design must reflect the specific needs of these groups in the same way as the interior of the building.

It is recommended that reference is made to Sport England's *Accessible Sports Facilities* and *Car Park and Landscape Design* Design Guidance Notes and *Active Design* download available from the Sport England web site.

Principal points for consideration include:

- The main entrance should be clearly visible from the main pedestrian and vehicular approaches to the site. Where this is difficult or impossible to achieve, such as in tight urban sites, existing schools or on college sites, there should be clear signs giving directions to the main entrance and related car parking areas.
- Direct and well-defined hard landscaped route(s) should be provided for pedestrians from the site boundary to the main entrance. These routes should be separated from cars and cycles, although they will be linked to parking areas.
- Safe route(s) should be planned to avoid circulation problems such as road crossings (particularly on education sites).
- Seating areas along pedestrian routes (over 50 m).
- Drop-off point as close as possible to the entrance.
- Access for people with disabilities, including wheelchair users, must be provided. Incorporate dedicated car parking close to the entrance.



**A well-positioned and landscaped pool building**

- Service and maintenance access should be separate from public car parking and the main entrance. This may include the provision of a screened service yard for the delivery of goods, water treatment chemicals and refuse collection<sup>19</sup>.
- Access to a first aid room with a dedicated space for emergency vehicle parking and adequately-sized doors for stretcher access.
- Security for users with well-lit public parking, appropriate landscaping and pedestrian routes located away from areas of potential concealment.
- Coach parking spaces and turning space, particularly if the facility serves children from local schools or if it is a 'destination' venue for a wider catchment.
- Secure and separate bicycle parking with racks located under cover close to the main entrance and, preferably, visible from the office/reception.
- Carefully considered evergreen planting and/or trees to prevent unacceptable levels of glare in the pool hall.

The following factors have an impact on the external appearance of pool buildings:

- Swimming pools are generally large volume spaces. The massing, scale and volume of the building will be key planning considerations in relation to location and environmental context.
- Activities such as diving, where high diving boards are provided, could substantially increase the overall height of the building and its scale.
- Water slides or flumes (if included) can be used as an internal and/or external architectural feature. They should form an integral part of the overall design and can help to give an individual identity to the building.
- The choice of an appropriate structural approach and material(s) for the large spans covering the pool hall and ancillary accommodation.
- It is essential that the glazing design is carefully considered to avoid glare and specular reflection inside the pool hall<sup>20</sup>.
- Providing the optimum balance of natural lighting avoids gloomy conditions in the pool hall.
- Windows allowing views in and out of the pool hall need careful consideration and should be considered in relation to the need for privacy.
- Windows can provide dramatic effects both internally and externally, particularly at night.

---

<sup>19</sup> See the Pool Water Treatment Advisory Group (PWTAG) publications *Swimming Pool Water 2009* and *Code of Practice 2013*, the Health & Safety Executive's (HSE) document HSG179 *'Managing Health & Safety in Swimming Pools'* 3rd Edition – IRSM (now CIMSPA) industry guidance and BS EN 15288: 2008 - Parts 1 and 2.

---

<sup>20</sup> See page 23 for section on glazing and the safety implications of glare and direct sun penetration into the building and methods of mitigation.

Orientation of the pool hall may be critical depending upon planning, site constraints and the need for controlled natural lighting throughout the day minimising the risk of specular glare

Outdoor sun bathing areas, when provided, should be positioned so that they have sunlight throughout the day

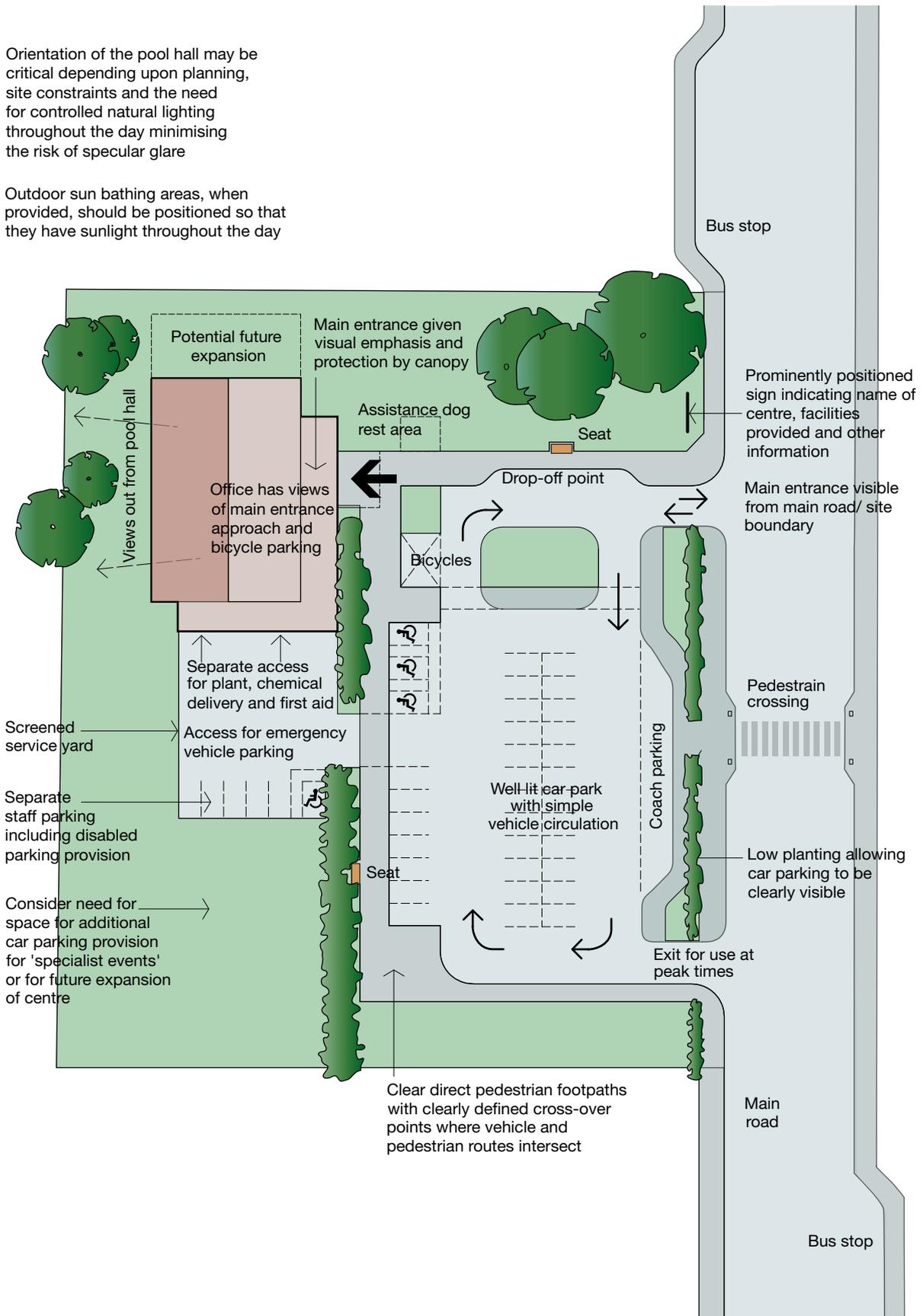
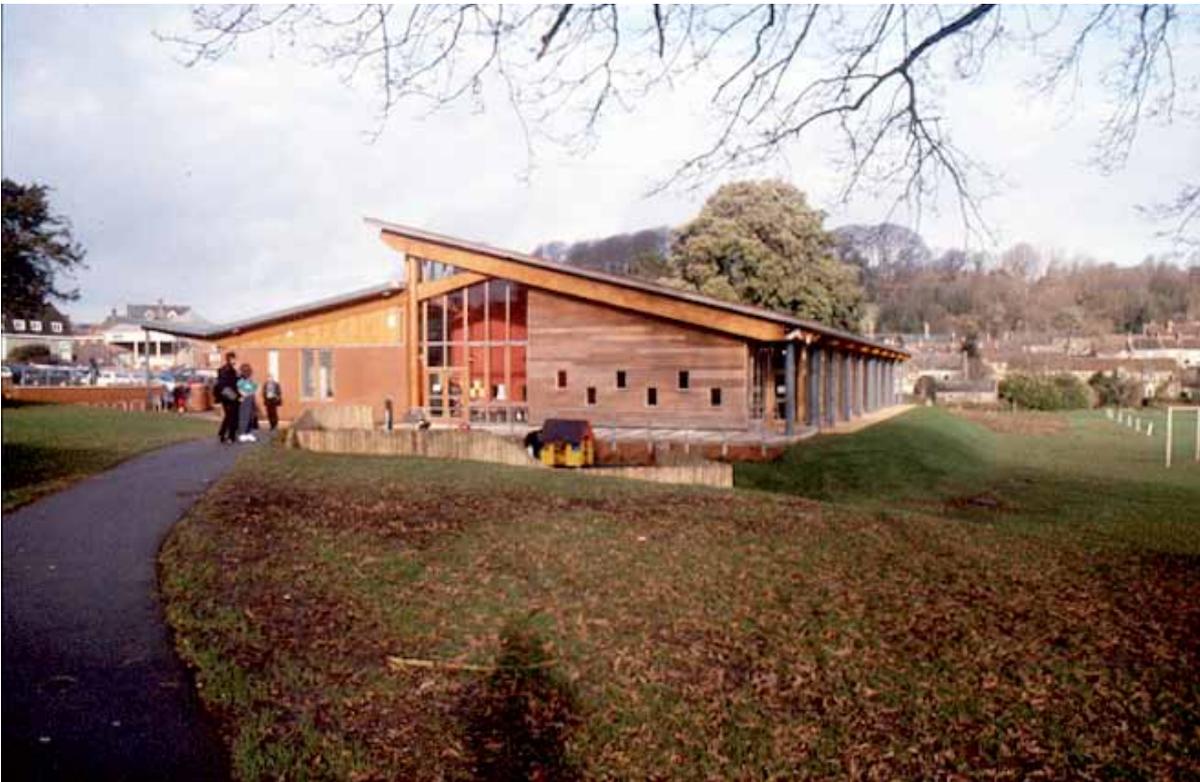


Figure 3 Notional site layout indicating desirable features (not to scale)



Clear signage helps users and raises the profile of a building. Signage should be incorporated into the overall design rather than be applied separately



An example of successful location, massing and use of materials for a small community pool

### First impressions

Swimming pool buildings should be attractive and well-maintained to ensure lasting customer appeal. The customer experience starts with the approach to the building. The position of the building on the site and the quality of the surrounding landscaping are important elements. Scale and identity are also important design factors in both rural and urban environments.

Signage and lighting can assist greatly in promoting the building and may be used to reinforce its external identity.

The entrance should have sufficient space to create clear orientation for customers and be inviting and non-threatening. It should also allow effective and unobtrusive supervision by staff. A positive first impression will influence visitors' perceptions of the facility as a whole. The materials and colours of the reception area will also influence the overall image and can provide a theme for the rest of the building.

Open arrangements work well with good levels of transparency into the main areas of the building, such as the pool hall, refreshment areas and any associated fitness facilities. However, appropriate

security measures will be required to avoid unauthorised access. In addition, an effective environmental separation should be maintained with pool/wet areas that have high temperature, humidity and air-borne chemicals.

A dedicated welcome area may be provided in larger centres enabling staff to provide new customers with key information on the services available.

***The need to create a good first impression begins at the entrance.***

***A positive first impression will influence visitors' perceptions of the facility as a whole.***



A well-proportioned entrance with clear and direct access from the roadside

### Organising the building

This section considers the main elements of buildings incorporating swimming pool provision and the relationship of spaces.

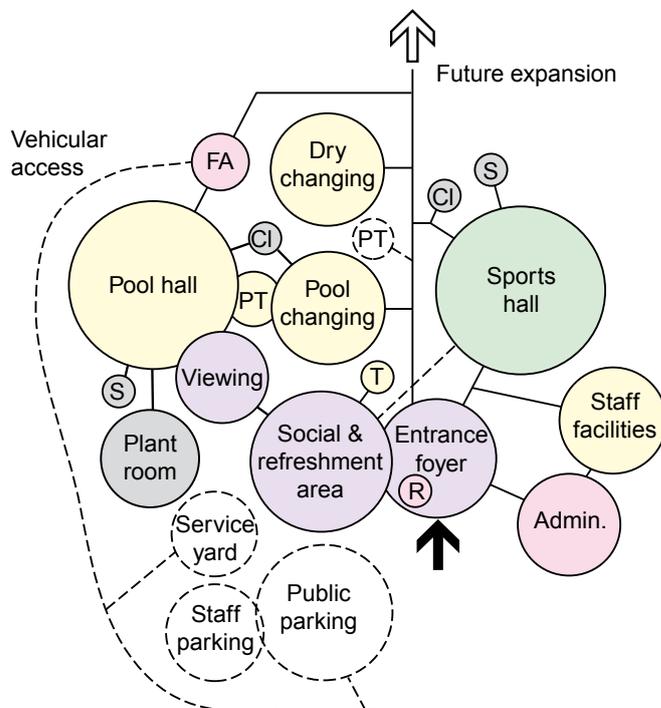


Figure 4 Relationship between main areas of a typical wet and dry sports centre (see Figure 6 example diagrammatic layout)

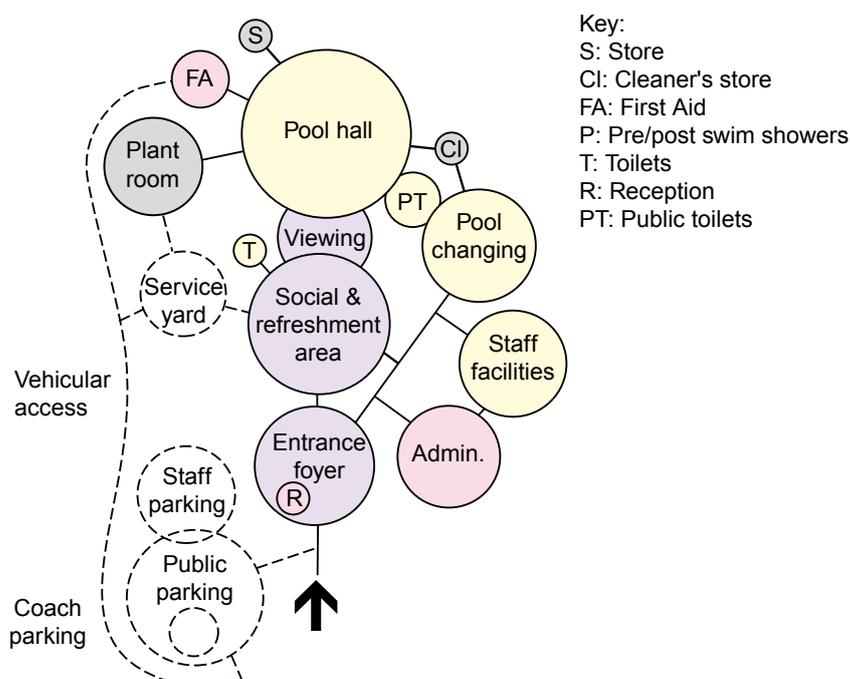
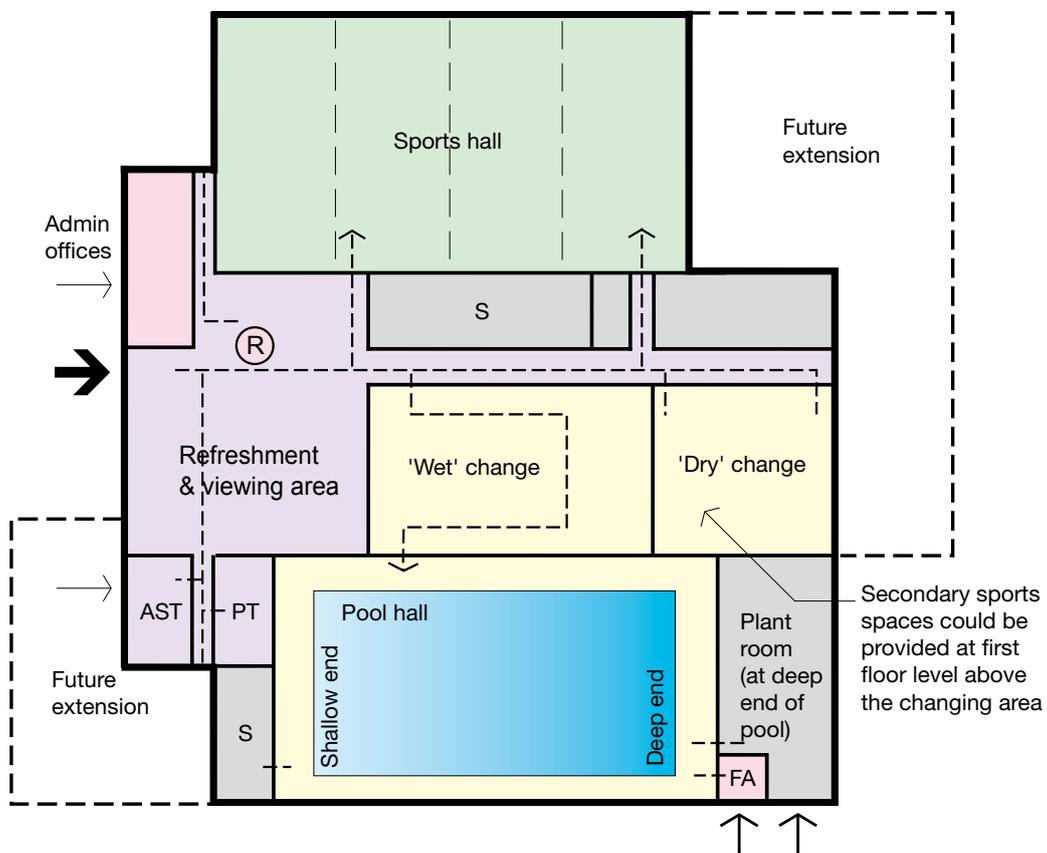


Figure 5 Relationship between main areas of a typical pool building

**Key:**

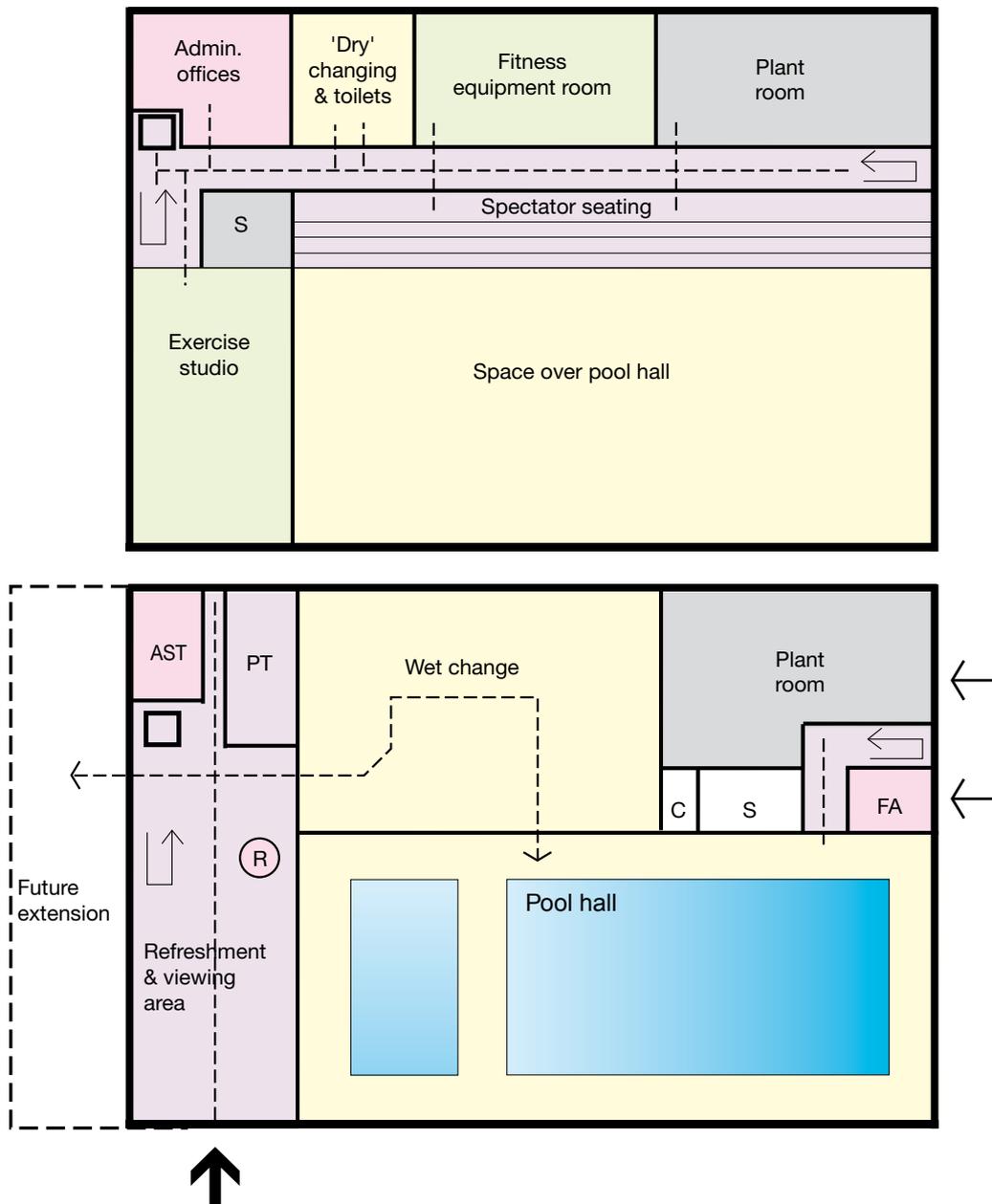
- AST Attendant staff accommodation
- C Cleaner's store
- FA First Aid
- PT Public toilets
- R Reception
- S Store
- SH Showers
- T Toilets



**Figure 6** Diagrammatic example of a single-storey 'wet and dry' sports centre layout

**Key:**

- AST Attendant staff accommodation
- C Cleaner's store
- FA First Aid
- PT Public toilets
- R Reception
- S Store
- SH Showers
- T Toilets



**Figure 7** Diagrammatic example of a two-storey swimming pool building layout

### 5.0 Developed Design Considerations

#### Public areas

##### Entrance area

The entrance area should provide sufficient space for groups of people to circulate, view notices or wait for friends. At peak times, the sudden influx of customers may require managed space for queuing. An open and uncluttered reception area eases circulation and customer orientation.

The entrance area should include:

- Clear and easily accessed 'in' and 'out' circulation routes
- A draught lobby, to reduce heat loss, provided with an effective dirt removing surface and automatic doors designed for easy access for all
- A prominently positioned and instantly identifiable reception desk

- A clearly signed and direct circulation route from the main entrance to the changing rooms via the reception desk
- Key information provided using clear signage to explain, for example, if changing rooms are separate 'male and female' or 'shared' and the location of accessible toilet facilities.

In addition:

- Automatic doors need to be carefully positioned as they can allow draughts when both sets of doors are open at the same time
- Notice boards and signs are required to indicate opening times and promote activities and services available to users
- A public telephone accessible to all users
- Entrance matting should be of adequate size to remove rainwater from shoes during peak periods.



Entrance area within a sports facility with viewing to the pool hall and fitness suite from the foyer

### Reception desk

#### Location and layout

The reception desk is of prime importance and its location, appearance and lighting will impact on the whole area. There are two main types:

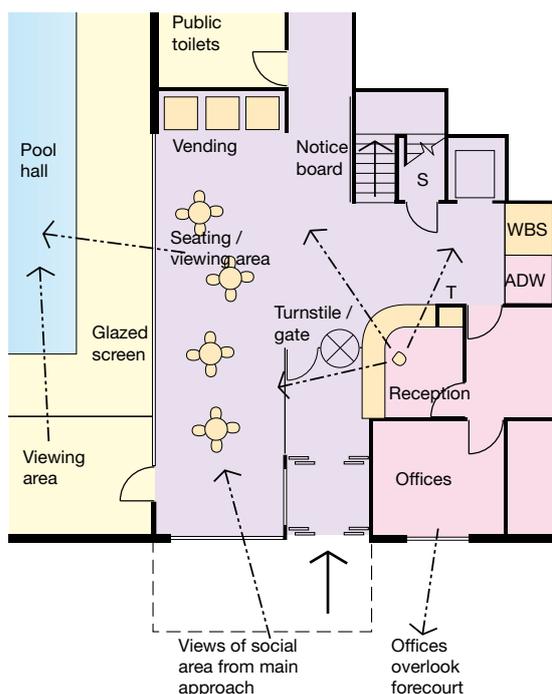
- **Island:** Its central location occupies more space but can suit larger centres with both wet and dry facilities, where separate circulation and space for queuing are required. The arrangement can be confusing to new customers and more difficult to control. It's isolation from offices and stores can complicate operation
- **Sidewall:** located to one side of the entrance area and usually linked directly to an office/store. This option is more suitable for smaller centres allowing the counter to be unmanned during quiet periods leaving office staff to deal with the occasional customer.

The reception desk should be located to allow:

- Visual supervision of the entrance/exit routes and all adjoining areas
- Restriction of unsupervised access by arranging the circulation pattern to pass the reception desk
- Security barriers/screens to be integrated into the design, where security is a high priority, and be in close proximity to the reception. In some cases, a position for a security guard may be required. Mobile or adjustable barriers might also be used at peak times, to control queuing
- Suitable artificial lighting for reception staff at all times of the day

- Direct access to other parts of the building including the pool hall, social and changing areas
- Adequate queuing space between the point of entry and the desk based on estimated numbers of users.

Cross-circulation, in front of the reception desk or through queuing areas, should be avoided.



- Key**
- WBS Wheelchair / buggy storage area
  - ADW Assistance dog waiting area
  - T Public telephone at low level
  - S Store

**Figure 8 Entrance and foyer arrangement for a typical small pool building with upper-floor accommodation**



**Entrance and foyer area within a multi-sports village including access control gates located next to the reception desk**

### Cash handling

The design of the reception area should take account of issues associated with handling cash. A secure area will be required for cashing up at the end of the day and possible overnight cash storage. In larger facilities, a pneumatic cash handling system may be included between remote cash points and the cash storage area.

### Ventilation

Adequate ventilation should be provided to create comfortable working conditions, particularly when rooflights are sited above the reception desk.

### Access Control

The initial design should anticipate the need for access control appropriate to the scale and nature of the facility. A system may include the provision of gates, turnstiles or barriers and allowance should be made for suitable access and egress for wheelchairs and pushchairs.

The access system may also incorporate a combination of control systems based upon:

- Magnetic swipe/smart card or PIN code through a membership control system
- 'Pay as you go' system using paper tickets, magnetic swipe tickets and/or tokens either pre-purchased or obtained from reception
- Manually controlled access by reception staff or a security guard.

*Accessible Sports Facilities* Design Guidance Note available from the Sport England web site gives details of space and other requirements.



Large café/reception area overlooking the pool

### ***Signage begins at the entrance and should display:***

- ***Opening times and emergency numbers***
- ***Clear directions to help circulation and orientation.***

***Remember that many users, in addition to partially sighted people, remove their glasses and contact lenses to swim.***

***Signage should be large with contrasting colours and be easily read.***

***See page 26 for signage required on the pool surrounds.***

### Refreshment areas

A refreshment area is often located close to the main entrance with views of the pool hall. It is usually intended for those who use the pool or other activity areas, but may also be located before the reception desk in order to attract passing trade. However, in smaller centres it may not be possible to justify more than a few vending machines in association with some informal viewing areas.

The social/refreshment area should be positioned on a primary route so that it will attract visitors' attention as they enter and leave the facility. If locating the refreshment area on an upper level is unavoidable, it should be linked by prominent stairs to the foyer and be clearly visible from the foyer area.

The size and scale of refreshment provision will depend upon:

- The number of people expected to use the building and whether the pool is linked to, or is part of, a larger centre containing dry activity areas
- Whether the pool is part of a community centre with a bar and kitchen
- The location of the pool building and whether the neighbouring area already has adequate refreshment facilities
- The type of menu to be offered
- Opportunities for brand sponsorship.

Consider the following points in the design and layout of all pool refreshment areas:

- Regardless of the scale of the facility, allow space for at least two or three vending machines positioned in a wall recess to reduce bulk and integrate within the overall design of the area. They should also be positioned to avoid repetitive/cross-circulation problems and allow space for people to stand in front of them. Avoid positioning machines close to door swings.
- Select easily cleaned, impervious floor finishes in areas subjected to heavy trafficking, soiling and likely spillage in order to meet hygiene regulations and minimise the risk of accidents. Such flooring should be selected to provide adequate slip-resistance, particularly in the presence of spillages etc.
- Ensure that lockable storage space for vending machine products is close by.
- Provide seating and table space appropriate to the size of facility, with good views of the pool hall and located close to public toilets.
- Ensure that catering facilities meet with the requirements of the *Food Safety (General Food Hygiene) Regulations 2006*, including any provision for staff sanitary accommodation.

Refreshment areas can be planned as integral parts of the pool hall, or separated from it by a glazed screen – this will stop spectators distracting children during swimming lessons and avoid humidity and smells making the space uncomfortable. It will also stop drinks and food getting on to the pool side.

A barrier may, however, be sufficient if the pool environment is well-controlled and designed to provide comfortable conditions for spectators<sup>21</sup>.

For some programme sessions, it may be necessary to close blinds or curtains to create privacy in the pool.

***The social/refreshment area should be positioned so that it will attract visitors' attention as they enter and leave the facility.***

A small community pool will require sufficient space in the refreshment area for up to 20 people. For larger pool facilities, other provision could include the following:

- Snack bar: advice on design and layout should be sought from a catering specialist. It is likely to include a seating area, counter and servery, food preparation area/kitchen, food storage area(s) and waste disposal facility.
- Licensed bar: legal advice must be sought and great care taken to meet the appropriate licensing requirements, particularly if the centre is run by a charity. It may need to be physically separated from other areas. Most breweries, if they have agreement to act as supplier, will give advice on the layout/design of the bar, including storage.

### Public toilets

Ideally, toilet facilities should include male and female accessible toilets for users with disabilities. At least one unisex accessible toilet should also be provided.

For small community pools with a limited social/viewing area, a unisex accessible WC compartment should be provided in addition to any accessible provision within the changing areas. For larger facilities, the provision of accessible toilets should be considered in respect of an overall access strategy. Refer to current regulations and standards<sup>22</sup>.

<sup>21</sup> See page 48 for section on *Spectator & competitor provision*

<sup>22</sup> *BS8300:2009 Design of buildings and their approaches to meet the needs of disabled people.*

Building Regulations - *Approved Document M 2004* and the *Accessible Sports Facilities Design Guidance Note* available from the Sport England web site.



Cafe area can be passively supervised from reception and offers views to the pool and the building surroundings

### Accommodation for children

**Pushchair and pram storage:** Baby buggy storage with security locks should be located close to the entrance, preferably in sight of the reception area. In addition, there should be sufficient space in the changing rooms, for carers who prefer to use the buggies whilst changing themselves, or their children.

**Baby change facilities:** Baby changing facilities should be easily accessible. They should be well ventilated and equipped with an adjustable changing shelf, a large purpose made nappy disposal bin and an adjacent washbasin. Provision can be within the male and female toilets and/or by providing one or more unisex accessible rooms with enough space for a parent, 2 children and a push chair (See BS 6465 and BS 8300). This may be integrated into a unisex accessible changing room with toilet, or by providing a dedicated unisex accessible parent and child toilet.

**Childcare facilities:** Accommodation for crèches or playgroups should be located at ground level and have direct access to a secure fire exit. The best facilities are linked to the outside with a secure and protected courtyard providing outdoor play facilities.

Levels of provision vary significantly depending on whether crèche, playgroup, nursery or day-care facilities are required and the length of stay.

A licensed childcare facility will need to comply with current Ofsted National Standards<sup>23</sup>.

<sup>23</sup> Refer to Ofsted publication *Crèches: Guidance to the National Standards* published by DfES: Standard 4 – Physical Environment. Similar publications are available for other levels of childcare.

### Pool hall

#### Structural approach

The sectional profile and height of the pool hall and adjoining areas, such as changing areas, may impact upon the scale of the spaces, making them feel either: light and spacious; or claustrophobic and oppressive. There are a number of structural roof options that may be considered:

- Simple pitched roofs
- Curved roofs with the high point centered over the pool width
- Sloping or curved mono-pitch
- Staggered or 'sawtooth' roofs
- Flat roofs.

Each option has advantages and disadvantages related to the specific site, internal volume and environmental requirements:

- The internal height of the pool hall may vary with the size of the pool and the proposed use
- Where the ceiling or roof is flat, for a 25 x 8.5 m (4-lane) pool a minimum clear height of 3.5 m may be considered
- For a profiled ceiling or roof, the minimum height for a similarly sized pool, may be between 4.5 and 6.0 m at the highest point, dropping to 3.5 m at the lowest point.

The volume of the swimming pool hall will have an influence upon the acoustic environment and the extent of acoustic absorption material that is required to limit the reverberation time to an acceptable level. See Appendix 3 *Acoustics* section for more details.

Exposed structural elements or rooflights running parallel to the length of the pool assist backstroke swimmers by providing a visual reference.

#### Glazing

Natural lighting can give life and sparkle to the pool hall interior, but it needs to be carefully controlled and considered with the general orientation of the building. Roof glazing over the length of the pool hall can provide good natural light allowing sunlight to be reflected off internal side walls while keeping glare, solar gain and heat loss to acceptable levels.

**Carefully controlled day lighting can add character and a connection with nature and the outside environment. However, specular reflection should be minimised.**

Areas of poorly positioned direct side and/or end wall glazing can create excessive glare and solar gain. All side glazing has the potential to cause specular reflection on the water surface, from light being reflected at a low angle on to the pool water and causing the surface to appear mirrored.

In pools with large external glazed areas, particularly facing the sun's path, solar gain can also impact upon lifeguards, affecting comfort and effectiveness. The design of the pool hall should take this into account, by including measures to reduce or control solar gain e.g. provide shading, or effective solar control glass.

The problem can be particularly difficult when the sun is at a low angle in the spring, autumn and winter or during the evening. The glare can mask the water below the surface and can make it extremely difficult to observe swimmers below. This has critical implications on the positioning and number of lifeguards required<sup>24</sup>.

Specular reflection and glare can also have a serious implication for spectator seating<sup>25</sup>.

In some instances large glazed areas have been successful. Options for controlling or minimising the impact of specular glare include:

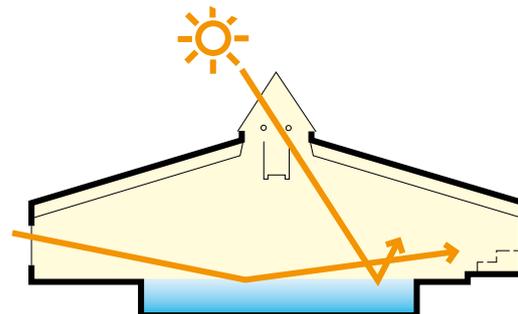
- Limiting glazing to a north facing length of the pool, in conjunction with a reasonable amount of roof-lighting (up to say 25%)
- Use of evergreen foliage or trees to significantly reduce the amount of light and glare
- Provision of an external active solar shading system that adjusts automatically for optimum lighting and glare control

<sup>24</sup> BS EN 15288-2: 2008 and the HSE publication HSG179 *Managing Health & Safety in Swimming Pools* make particular reference to the need to avoid specular reflection and minimum numbers of life guards.

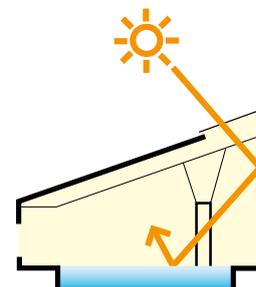
<sup>25</sup> See CIE 062-1984 Technical Report *Lighting in Swimming Pools* for critical angles of incidence.

- Provision of manually operated blinds
- Automated interstitial blinds mounted within double glazed units, linked to light sensors
- Use of proprietary translucent insulated sandwich panels that diffuse daylight and also provide some thermal insulation
- The addition of underwater lighting in the pool tank.

Capital cost and maintenance factors will need to be considered for each option.



**Figure 9** Top glazing will not create reflection on the water for spectators. However, side glazing may need to be screened



**Figure 10** Glazing in a mono-pitch roof can allow safe sun penetration into the pool hall



**Side lighting can cause specular glare on the pool surface limiting visibility below the water's surface. Careful positioning of lifeguards can minimise the impact of the glare**



Community pool hall with an exposed roof structure top-lighting and low level windows

### Artificial lighting

Artificial lighting and colour schemes will impact upon the general ambience of the space, and can affect the colour of bathers' flesh tones and the appearance of the water.

#### Artificial lighting levels:

- 300 lux\* for most activities
- 500 lux\* for competition

#### International events require higher levels:

- FINA: 600 lux at the turn and start ends
- Olympics: 1500 lux over the entire pool\*\*.

#### See Sport England's 'Artificial Sports Lighting' Design Guidance Note

\* Refer to CIBSE Lighting Guide 4: Sports Lighting

\*\* Television requirements that will rarely be used in most 50m pools

Light fittings should be located above pool surrounds for ease of access or alternatively access from a gantry if over the pool water. Light fittings should be directed so they cause minimal glare or reflection to bathers in the water, spectators and staff on the pool surrounds. Uplighting, rather than direct lighting, is preferred for general illumination as this allows a more even distribution of light, and obviates glare.

Fittings should generally be of the discharge type as the lower wattage type fittings are unlikely to meet the lighting needs. The type of discharge fitting should be selected on illumination performance, colour rendering, lamp life and

energy efficiency. It is important that the fittings do not cause significant spectral change to the colour of finishes within the pool hall.

Providing reliable and evenly spread artificial underwater lighting can be difficult to achieve. Underwater areas left in shadow can be detrimental to the ability to see objects clearly in the pool. Although there are currently no regulations requiring underwater lighting, *CIE 62: 1984 Technical Report: Lighting for Swimming Pools* provides guidance. However compliance with this report can result in high capital and running costs, particularly for high-end installations.

Underwater lighting therefore requires careful specialist design. This will need to take into account:

- The building design characteristics, type of pool, competition standards etc. (to determine the level of illumination required)
- The characteristics of the proposed fittings (e.g. direct or indirect fittings)
- The light output, angle of light distribution and number of fittings required.

A well-designed underwater artificial lighting system can provide several benefits:

- Improvement of the appearance of the pool and pool hall – particularly at night
- Improvement of visibility below water level
- Improvement of safety within the pool<sup>26</sup>.

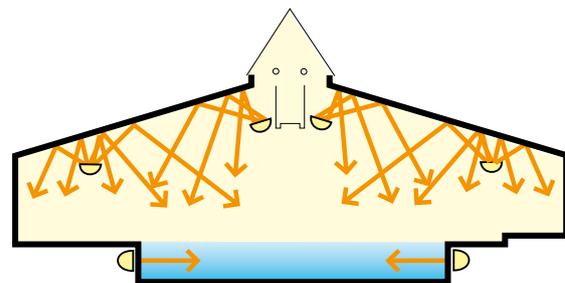


Figure 11 Uplighters accessible from poolside. Alternatively, for larger pools, an overhead gantry. Underwater lighting should be selected based on speed and ease of re-lamping

**The use of light colours, particularly on walls and ceiling surfaces close to the pool tank, will contribute to a warm and 'sunny' atmosphere.**

<sup>26</sup> CIE – International Commission of Illumination  
<http://www.cie.co.at/index.php/Publications>



**Well-designed uplighting can provide good overall illumination whilst achieving an attractive space. Avoid locating fittings above the pool unless accessible from a gantry**

In deeper water e.g. diving tanks, it may be necessary to provide additional light fittings in the lower pool wall, in order to illuminate the pool base.

The use of light colours, particularly on walls and ceiling surfaces close to the pool tank, will contribute to an enhanced atmosphere. Light colours are less likely to be distorted by artificial light, are more easily maintained and can aid the distribution of light through reflection, for example, from the roof soffit.

See Appendix 3 for more details.

### Signs

It is essential that safety, directional and information signage is clear, concise, well-designed and suitably positioned in all areas of the swimming pool facility. Consider all aspects that are likely to impact upon the safety of both users and members of staff. It may be necessary to undertake a risk assessment to establish what provisions are needed, particularly in respect of any unusual facilities or features.

In addition to general signage, specific signs must be provided to warn users in respect of:

- Water depth – visible from the surround and the water – to warn users of deep (>1.2 m deep) or shallow water (<0.9 m deep). The actual depth must be indicated – simply saying the water is shallow or deep is not adequate
- Where diving/jumping is NOT permitted
- Restrictions on the use of features such as diving facilities.

Information should be given pictorially as well as textually. As an example, people may not be aware of their height, and a pictorial sign at the entrance reading 'check your height', may prevent people getting into the water at an unsuitable place. Lettering must be big enough to be clear for those with limited vision and use contrasting colours to assist visibility.

The colour, size and style of lettering are extremely important if it is to contribute to the overall building design. Signs may be a part of the wall design and be incorporated into ceramic tiling.

The BS EN 15288-1:2008 sets out considerations for Safety-Information-Systems (5.3) in relationship to pool function, water depths and emergency routes and Health and Safety (Safety Signs and Signals) Regulation 1996 covering the design of 'Hazard', 'Protection' and 'Mandatory' safety categories<sup>27</sup>.

There is scope for facility-specific signs that contribute to the corporate identity, provided they conform to the general principles in the regulations.

Generally, the use of internationally recognised sport symbols and compliance with BS 5499 is recommended.

<sup>27</sup> See also:

HSE *Health and Safety: Legal Series L 64 Guide to the Health and Safety (Safety Signs and Signals) Regulations 1996*;  
British Standard BS 5499: Parts 1, 2, 4, 5, 6, 10, and in particular Part 11: 2002 *Water Safety Signage and*;  
BS EN 15288-1:2008 (7.0).

### Configuration

The various ASA classifications for swimming pools and standard dimensions are indicated in the section on 'levels of competition' in Section 3 on page 9. Many projects will have a 25 m main pool and, depending on need, may have a separate learner pool/training pool. These can be in the same pool hall area or in separate spaces.

Diving from springboards and platforms should only take place in a dedicated water area that is not being used by other swimmers. Ideally this should be provided as a separate 'diving' pool, although such pools can also be programmed for a range of other aquatic activities, particularly if provided with a movable floor. If, because of space or financial limitations, diving facilities have to be integrated into a 25 m or 50 m pool, a movable bulkhead can also give the necessary physical separation.

There are general planning principles that apply:

- Access to the pool hall should be at the shallow end of the pool and must not be located near water deeper than 1.2 m. A suitable safety barrier leading to shallow water should be provided if this is not possible
- Access to the pool from the changing room should be through the toilet area and then the pre-swim shower area to promote hygiene
- Access is normally required around the complete pool tank perimeter, and pool surrounds should conform to the minimum sizes in the tables on page 29 as appropriate
- Any wall buttresses or pillars on the pool surround should have rounded corners and not restrict the required width
- There should be no changes in floor level. If this is unavoidable, ramps with a maximum gradient in accordance with current standards and regulations should be provided, with handrails on both sides<sup>28</sup>
- If provided, 'fixed' staff control points should have good overall views of the entire pool hall and be subject to a risk assessment at the design stage



50 m pool divided with two movable bulkheads

- A first aid room must be directly accessible from the pool surround with direct access to an external hard standing area for emergency vehicles
- Pool equipment and cleaners' stores should be directly accessible from the pool surround
- Appropriate viewing is required for spectators (refer to page 48 for section on *Spectator & competitor provision*).

**See Appendix 1 'Pool types and technical design issues' for more detailed considerations for a range of different pool tank options.**

<sup>28</sup> British Standard BS 8300. Building Regulations Approved Document M: 2004.

See Appendix 3 section on *Pool and pool surround drainage principles* regarding slip resistance to the pool surround.

For pool floor refer to BS EN 15288 Part 1 which requires slip resisting tiles to the pool floor to a depth of at least 1.35 m.

### Combining two pool tanks in one hall

Combining two water areas in the same hall may be economical in capital terms but the following should be considered:

- It will not necessarily reduce the number of lifeguards required
- It limits the possibility of closing off one pool to reduce supervision requirements
- It will require a significant width of pool surround separating the pools and an assessment of whether there is a need for physical separation i.e. a barrier or screen, to reduce the possibility of a child straying from one pool to another. A full-height screen can also give privacy and limit sound transmission
- It compromises the privacy that some user groups require e.g. people with disabilities, cultural or faith groups or single sex sessions
- It could restrict control of environmental conditions for the different areas.

Some of these issues could be addressed by the use of a glazed screen with built-in blinds or a sliding opening section. Screening with planting, or simply by increasing the acoustic attenuation of the pool hall, could also be considered.

Where two pool types are provided separately, for example, a learner and main pool, circulation to the main pool should not be via the learner pool surround as this may disturb users. Similarly, the changing room design should achieve an appropriate degree of separation to create privacy and direct access to a learner pool.

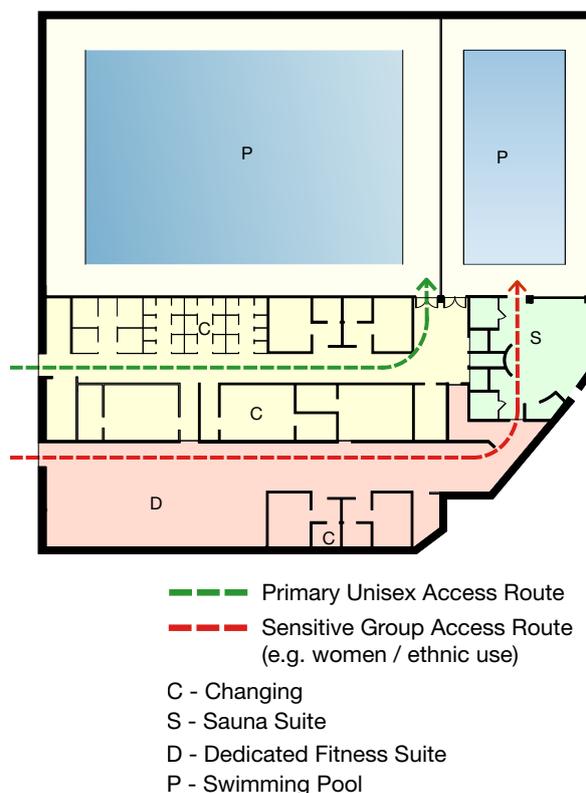
If a separate diving pool is planned in the same pool hall as the main pool, it should be positioned at the deep end of the main pool.

### Privacy for some user groups

Many users will be quite relaxed to swim in a public area, but equally there may be personal, religious or cultural reasons that make people/groups uncomfortable about being visible in their swimming costumes. To engage with the whole community, consideration should be given to providing a greater degree of privacy for some users groups.



It may be appropriate to provide separate changing rooms with direct access to a screened-off pool. The alternative, to programme the use of the whole swimming pool(s) for dedicated sessions at certain times, may be cost prohibitive (refer to section on *Changing facilities* starting on page 34).



**Figure 12** A layout designed with a dedicated suite of changing, fitness and sauna for sensitive groups

### Pool surround requirements

Main Pool	Start End	Turn End	Sides
20 m Community/ Learner pool	2 m	2 m	1.5 m
25 m Community	3 m	2 m	2 m
25 m Competition	4 m	3 m	2 - 3 m
50 m International	7 m	5 m	4 - 6 m
Learner pool	Access side 2 m	Other side 1.5 - 2 m	
Diving pool	Board end	Opposite end	Sides
Generally	4 - 6 m	2 - 4 m	3 - 4 m
International	6 - 7 m	3 - 5 m	4 - 6 m

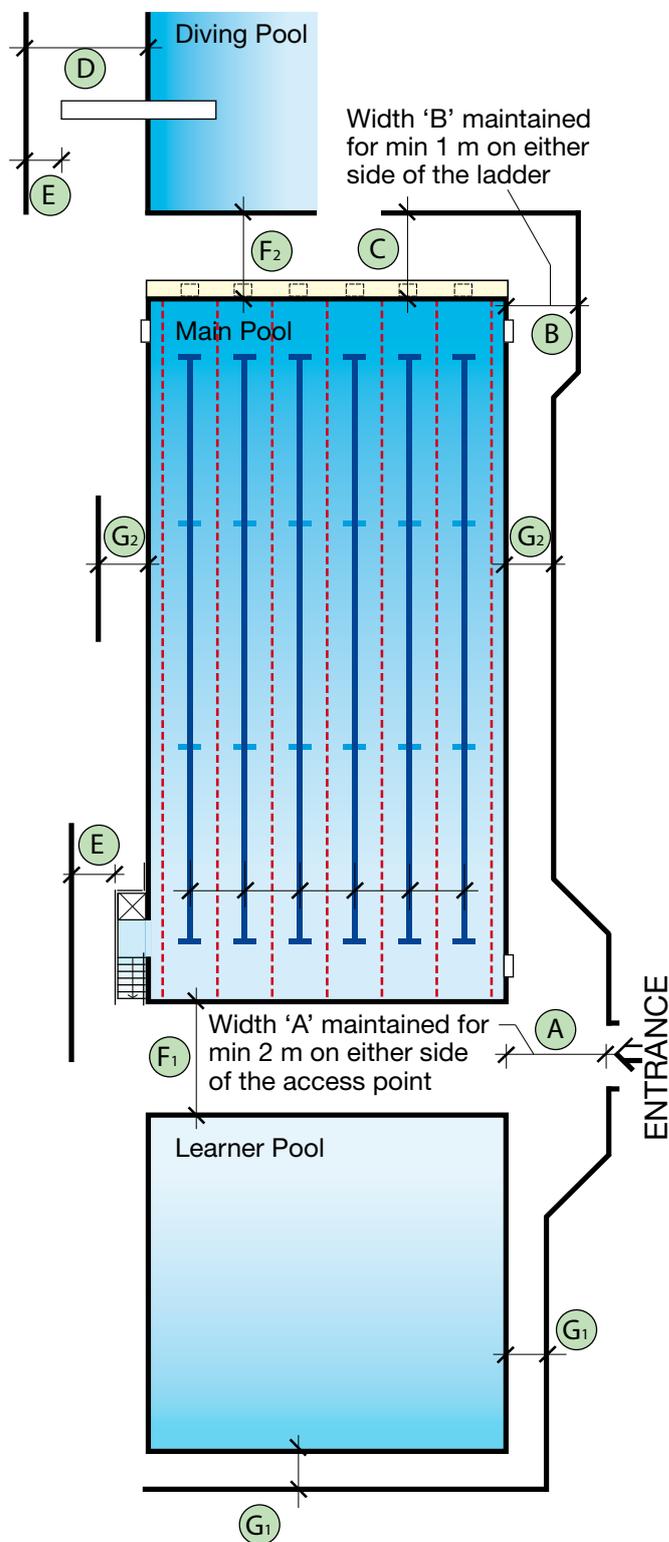
**Table 1 Pool surround widths preferred by the Amateur Swimming Association (ASA)**

**Notes:**

1. Subject to overall pool design, the ASA's preferred general dimensions for the pool surrounds may need to be increased to meet the minimum requirements for certain prescribed areas around the pool as set out in *BS EN 15288 Part 1 2008*. See Table 2 below.
2. For international, world or Olympic competitive events the pool surround widths would also need to meet the requirements of the *Federation Internationale de Natation (FINA)*.
3. Where the main pool is to be used to stage even low key events with competitors sitting on the pool surrounds, the pool to wall dimension G2 should be a minimum of 2 m.

Dim ref	Location	Clearance (minimum)
A	Entrance wall to pool	3.0 m
B	Pool to wall at exit points (ladders/steps)	2.5 m
C	Pool to wall in areas of diving boards / platforms	3.0 m
D	Diving pool to wall	4.5 m
E	Minimum circulation space around installations/features	1.25 m
F1	Distance between a diving/swimmers pool and a non-swimmers pool area, in the absence of separation	4.0 m
F2	Main pool to diving pool, in the absence of separation	3.0 m
G1	Pool to wall for pools under 300 m <sup>2</sup>	1.25 m
G2	Pool to wall for pools over 300 m <sup>2</sup>	1.5 m

**Table 2 Minimum requirements for widths of pool surrounds from BS EN 15288: Part 1: 2008 (See Figure 13)**



**Figure 13 Minimum requirements for widths of pool surrounds from BS EN 15288: Part 1: 2008 (see Table 2)**

### Easy access to the water

An appropriate combination of recessed 'easy going' steps, recessed ladders, ramp, submersible platform and/or hoist should be provided to allow easy access to and from the water for all users. In this respect deck level pool surrounds are preferred.

See separate Sport England Design Guidance Note *Accessible Sports Facilities* for further details.

Pool transfer aids should be provided for all pools. The type of aid will depend on the needs of the user. However, all pools should provide a demountable hoist and a metal socket fixing mounted into the pool surround.

Built-in ramps or walk-in steps are the preferred options to assist wheelchair users and people with walking difficulties. However, portable steps/stairs can be used to enhance existing pools and the part of the equipment available to help people with particular disabilities.



Ramp access and projecting platform adjacent to a teaching area in a specialist pool



Built-in recessed 'easy going' steps allow safe access to and from the water for ambulant users.

	20m swimming pool	25m swimming pool	50m swimming pool	Learner pool	Diving tank
Self-propelling waterproof chairs (min)	1	2	3	*	*
Poolside hoist (single position)	●	●			○
Poolside hoist (multiple position)	○	○	●	●	●
Submersible pool surround lift	○	○	○	○	○
Mobile hoist	○	○	○	○	○
Portable easy going steps	○	●	●	●	
Minimum number of full-height lockers	4	4	8	*	*
Minimum number of wheelchair accessible lockers	4	4	8	*	*
Changing mats	●	●	●	*	*

Key: ● Required ○ Recommended  
\* As main pool provision

**Table 3 Mobile pool equipment taken from Sport England Design Guidance Note Accessible Sports Facilities**



**A submersible pool surround lift integrated into the pool as part of the pool surround can provide a dignified access to the pool for wheelchair users**

### Movable floors and bulkheads

Movable floors are being used more extensively to change the water depth over part or all of the pool tank area in order to achieve greater programming flexibility. They allow more activities to be accommodated within a single pool area or improve activities that may be compromised by a fixed depth of water. There is evidence of greater through-put and reduced net operating cost where they are used, particularly for 50 m pools.



**Movable floors provide increased flexibility of use and access to all**

The use of this technique to create a 'dry' activities space is usually limited by the wet humid conditions within the pool hall. However, learner pool floors which can be raised to the level of the pool deck surround, are sometimes used as a holding area for competitors when an event is taking place in the main pool.

Movable floors can be adjusted from a depth of a few centimetres for carer and baby classes to a safe depth of 5 m for a person diving from a 10 m diving board.

With a main pool and learner pool configuration as recommended by the ASA (see Figure 13 on page 29), there are a number of locations in which a movable floor can provide benefits.



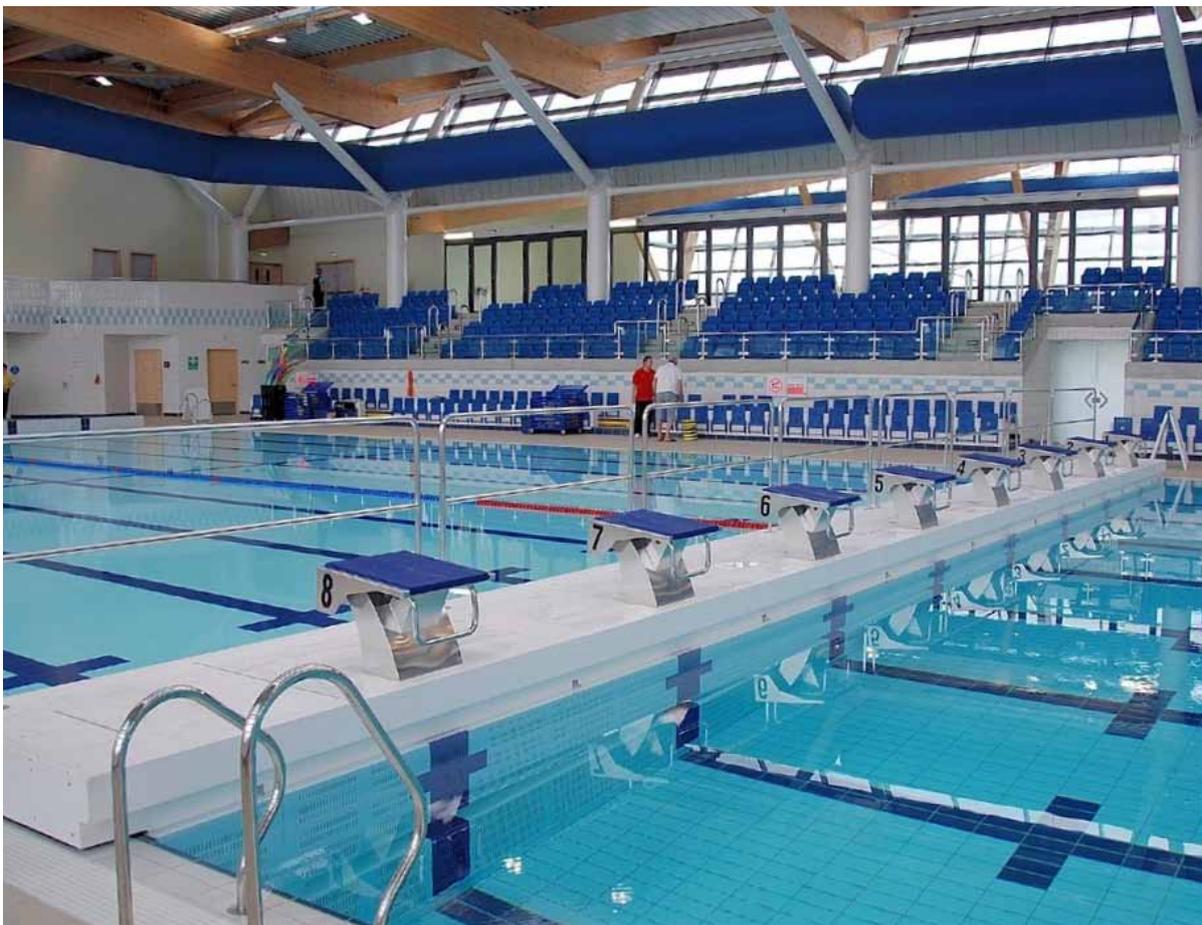
Submersible wheelchair lift and 'easy going' retractable steps integrated into a movable floor

Where a movable floor is provided as part of a learner pool, automatically folding steps (as shown in the illustration on page 34) can be integrated with the movable floor to allow mother and child, or those with ambulant disabilities, to access the pool with greater ease, regardless of its set depth.

There are two types of bulkheads: those which traverse laterally (and when not in use, are stationed at one end of the pool); and those which move vertically (and when in their lowered position, are housed in a recess in the pool floor).

Bulkheads can be used to:

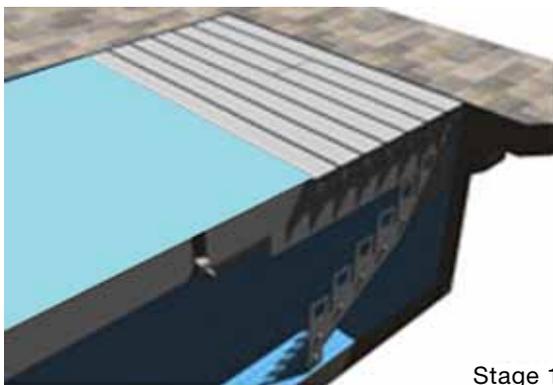
- Divide the water area so it can be used for different activities simultaneously. This is often desirable for safety reasons
- Reduce the length of an existing pool to 25 m, the length recognised by the ASA for training and competition



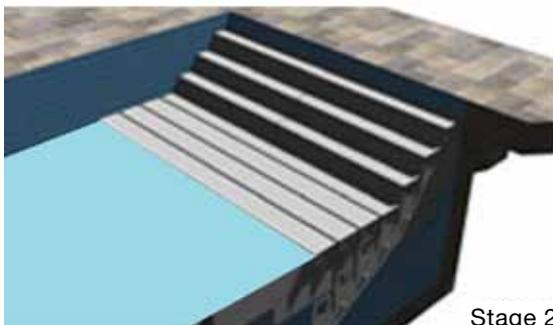
The movable bulkhead divides the main pool into two water areas that can be used simultaneously



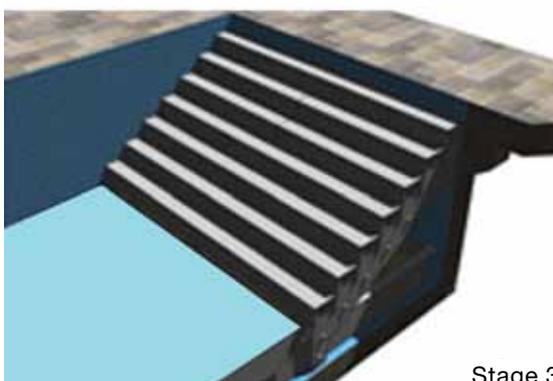
Self-depositing steps



Stage 1



Stage 2



Stage 3

Figure 14 Self-depositing steps can be integrated into a movable floor providing easy access whilst maintaining a fully flexible pool

- Provide measurable distances where accuracy is important
- Provide a safety barrier to the edge of a movable floor.

See page 6 of Appendix 1 for construction issues in relation to timing pads for competition use.

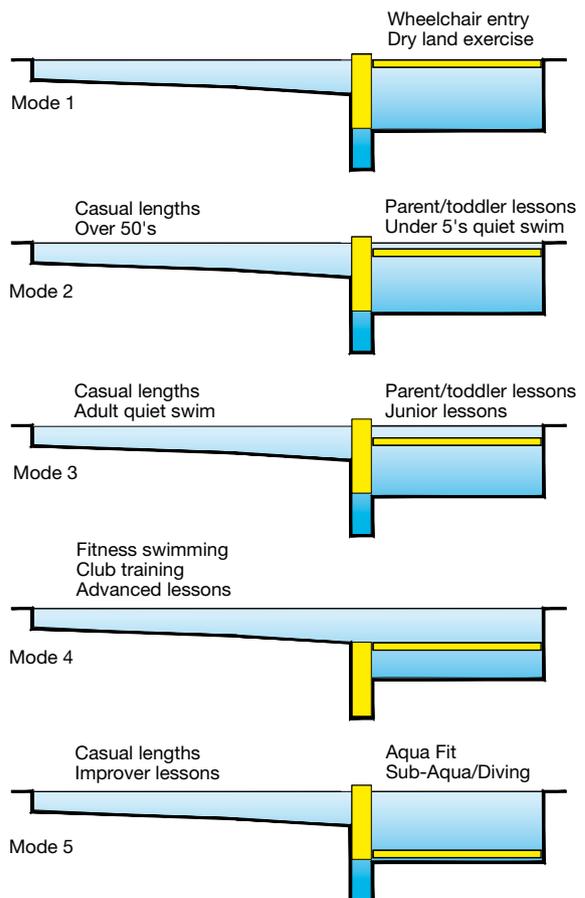
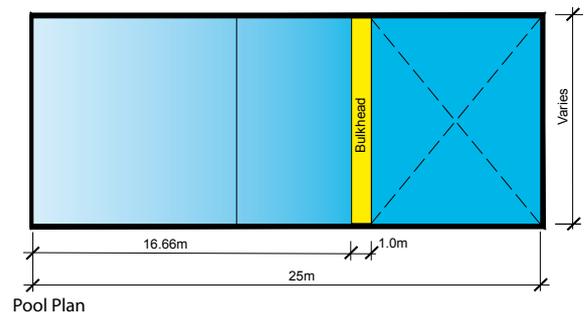


Figure 15 Examples of flexible pool use where a bulkhead and movable floor are provided

Depending on the movable floor selected, it may be possible to adjust the floor from level to an inclined gradient. However, any gradient must be limited to 1 in 15 to meet BS EN 15288: Part 1 and be provided with a slip-resistant surface.

### Changing facilities

#### Key design issues

Swimming pool changing can be designed with either open-plan single-sex areas or as a 'village changing' unisex area with individual cubicles.

The village changing arrangement is usually preferred for the various modes of use (see Table 4 on page 39). Village changing can provide:

- Greater flexibility to accommodate varying mixes of male and female users, including family changing and changing for people with disabilities
- Flexibility to allow staff of either sex to supervise, clean and maintain the area<sup>29</sup>
- Minimise any perceived sense of insecurity for sensitive users<sup>30</sup> by well-designed changing rooms that offer privacy through adequately-sized, good-quality cubicles.

There is scope for variations in both systems with the addition of group single-sex changing rooms,

***It is recommended that early consultation takes place with stakeholder groups with a view to understanding the full requirements of all users.***

buffer rooms and additional cubicles that are discussed later. This can give a degree of choice for user groups. It is recommended that early consultation takes place with stakeholder groups with a view to understanding the full requirements of all user groups.



**Village changing with views from the poolside**

<sup>29</sup> Some European facilities use a variation in which the wet and dry circulation routes are separated. This needs more space and the layout can be confusing but has advantages in reducing the migration of dirt into wet areas, selection of appropriate flooring and the cleaning of the floor.

<sup>30</sup> See *Women's Sport and Fitness Foundation*  
<http://www.wsff.org.uk/>

Changing areas often attract criticism in otherwise well-designed facilities. The key issues are:

- Adequate spatial allowance for users to maintain a sense of personal space
- Capacity to cope with peak times, without pinch points, particularly between cubicles and lockers
- A flexible layout for varying ratios of male and female users
- Areas that can be closed off for privacy for sensitive groups with separate access to toilets/pre-cleanse/pool water
- A suitable environment avoiding extremes of humidity, air movement (draughts) and temperature
- Simple and clear circulation routes between point of entry and the pool hall
- Well-designed cubicles and lockers with suitable materials and robust fittings which, together with good supervision, help to resist vandalism
- A number of hose points to limit the length of hoses and adequate falls to drain, to aid efficient cleaning and maintenance of the changing, toilet and shower areas.

Design features that can help to achieve bright, crisp and airy surroundings for users include:

- The use of natural top-lighting e.g. rooflights can improve the appearance of the changing area and may minimise the use of artificial lighting
- Bright and warm artificial lighting and maximising the ceiling height
- Use of bright contrasting colours to walls, cubicles, lockers, signage and graphics.



Signs must give clear information using lettering which contrasts clearly with its background to improve visibility and reassurance to users. Braille should be incorporated and imagery is also beneficial

### General planning principles

- The route from reception to the pool should be organised in a logical sequence for easy wayfinding, operation and supervision
- Vanity areas should be spacious enough to prevent congestion close to the entrance and include provision for wheelchairs. Account should be taken of bathers entering and leaving in addition to those using the vanity area
- Space should be provided close to the entry point, and within sight of the reception, for storage and parking of baby buggies, prams and wheelchairs. Also make adequate space allowance for their storage within the changing area
- Single-sex changing areas and toilet provision should be well-screened from common areas, for privacy
- The layout should allow effective surveillance by staff
- Through routes should be clearly defined and lockers should be positioned in close proximity to changing benches or cubicles
- Toilets should be located on the access route to the pool and pre-swim showers located immediately prior to the entry into the pool hall.

Pool changing should not be combined with dry changing. Pool changing areas generally have higher temperatures and humidity, lack individual showers, and are more difficult and expensive to keep clean.

To avoid cleaning problems, minimise repetitive circulation where users from the wet side use the same routes as those from the dry side.



Circulation areas associated with changing facilities should not be restricted

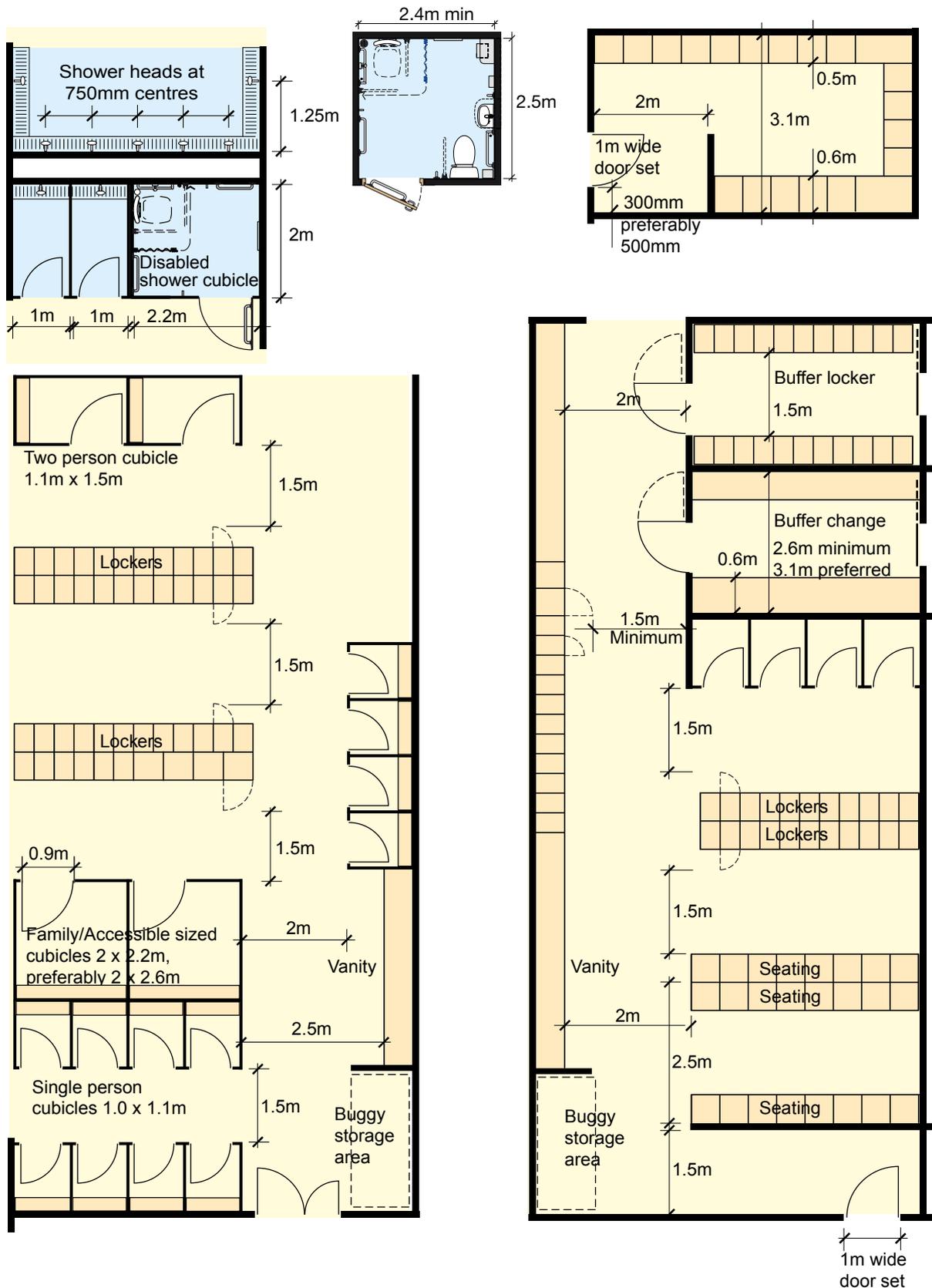


Figure 16 Preferred minimum dimensions for changing/locker room layouts

### Changing layouts

The following diagrams show typical arrangements for single-sex changing and mixed-sex village changing with cubicles for a 25 m x 6-lane pool with secondary pool. They assume 'un-programmed swimming' and the maximum safe occupancy that is possible as in the sample calculation shown on page 44.

Single-sex open-plan changing accommodation should allow flexibility to manage variations in male/female-mix ratios. This can be achieved with group changing rooms located between the main changing rooms, with interlinking lockable doors, to become 'buffer' changing that can be quickly allocated to either male or female use.

Village changing is the preferred option for most new pools and a number of existing pools have converted from single-sex changing to village changing. For most community swimming pools, village changing with at least two lockable group

changing rooms (for school classes, competition and club team use) offers the most cost-effective and easily managed arrangement. Village changing can also be divided into dedicated zones for male or female use, for particular programme sessions.

Lockable 'buffer' changing rooms can be used as an overflow facility during busy periods. At off-peak times, they will remain locked unless needed for school or group use. At peak times, they can be opened up to provide overspill male or female changing.

Some user groups will have specific requirements. For example, a school pool will require more group changing rooms, and a specialist pool for people with disabilities will require mainly large accessible changing cubicles with minimal group changing.

Specific requirements should be determined by appropriate consultation prior to preparation of the brief.



Village changing with generous circulation zone to pool entry with shower zone en route

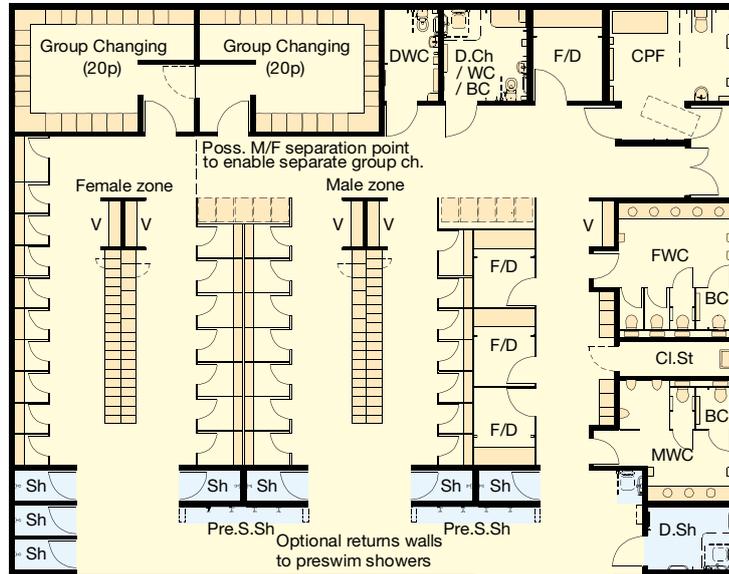
**Figure 17 Village changing (unisex cubicle changing) with integrated accessible changing and toilets including the unisex 'Changing Places' room**

**Note:**

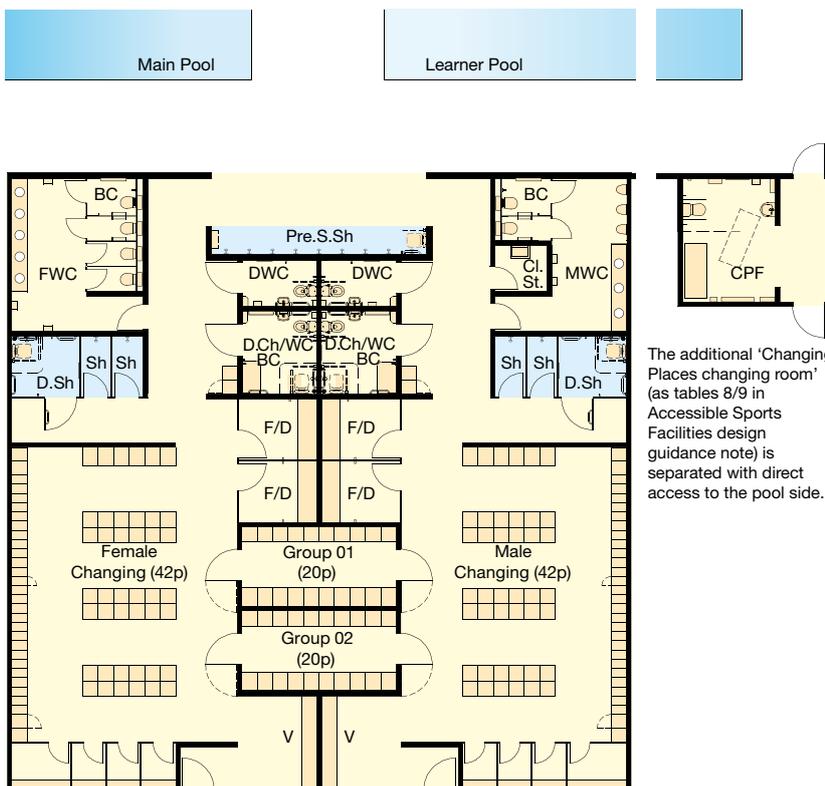
Changing areas may be open to the pool area to allow direct views. However barriers should be incorporated to prevent smaller children accessing deeper pool water areas straight from the changing room and users having direct access without passing through the pre-cleanse shower zone. As a general 'rule of thumb' at an early planning stage, the changing and sanitary zone area would be equal to the water area that it serves.

**Key:**

- BC Baby change
- Cl. St Cleaners store
- CPF Changing Places Facility
- D.Ch/WC Unisex accessible changing room with WC
- D.Sh Unisex accessible shower cubicle
- DWC Unisex accessible WC
- F/D Family/disabled accessible changing cubicle
- Pre.S/Sh Pre-swim showers
- Sh Post-swim shower
- V Vanity area



**Figure 18 Separate male and female changing areas with integrated accessible changing and toilets and individual cubicles for families and wheelchair users**



### Analysis of types of changing room layouts

Function	Mixed-sex village changing	Single-sex, open plan changing areas
<b>Usability</b> Advantages	Simple, direct circulation routes with views to and from the pool and other areas. Individual privacy. Cubicles popular with women (if designed to allow sufficient personal space and feeling secure and well supervised). Layout can be designed to ensure users pass toilets and showers. Adjacent lockable group changing rooms can also give additional capacity at busy times.	At quiet times, users may use as much spaces as they wish. Vacant changing spaces can easily be identified. School groups can be more easily supervised. Layout can be designed to ensure users pass toilets and showers. Buffer rooms can be used for lockable groups changing. Popular with club groups.
Disadvantages	Can be difficult to find a vacant cubicle. Might be difficult for school groups to be supervised and there is the additional complication of storing pupils clothes in the lockers. More mingling of fully clothed and wet users.	Less open circulation routes to and from the pool and other areas. Lack of individual privacy. Cubicles may be required in addition. Privacy barriers required at point of entry to the changing room and at the pool hall and makes more complex and restricted circulation pattern.
<b>Flexibility</b> Advantages	All changing spaces and lockers are available to all users giving flexibility to accommodate any proportion of male and female users. Parents can share a cubicle with children of opposite sex. Family groups can change together.	Individual bench changing spaces are not defined making it possible to accommodate more users during busy periods.
Disadvantages	Location of toilets may cause repetitive/cross-circulation where rows of cubicles and lockers open directly into the pool hall.	Unless buffer changing rooms are provided, there is no flexibility to accommodate different proportions of male and females. Family changing with parents and children of opposite sex is impossible, except for young children. Provision may need to be provided elsewhere.
<b>Accessibility</b> Advantages	Helpers can accompany people with disabilities of opposite sex. Some cubicles can be sized to give privacy to people with disabilities.	Sufficient free space can be provided so that people with disabilities can move easily around the changing area.
Disadvantages	It can be difficult for people with disabilities to move around in the cubicles and changing areas.	People with disabilities require an assistant of their own sex. More complex circulation caused by privacy screens can restrict circulation.
<b>Cleanability</b> Advantages	Row of cubicles can be taken out of use during cleaning (subject to the layout and the location of floor drainage gullies).	Large, relatively uncluttered floor areas should be easier and quicker to clean. If buffer changing rooms are provided these can be locked during off peak times.
Disadvantages	Cleaning has to be confined to relatively small areas at a time and may take longer because of the need to work around cubicles and their supports.	Large open-plan areas may be more difficulty to close off at times of low demand.
<b>Manageability</b> Advantages	Staff of either sex can supervise, clean and manage the entire changing area.	The entire changing area is normally visible and can be easily supervised.
Disadvantages	There can be hidden areas that are difficult to supervise.	Requires two members of staff of opposite sex to supervise the two areas and to deal with problems such as the opening of lockers.
<b>Capital cost</b> Advantages	Minimum number of lockers required.	Additional lockers required for different peak demands of a particular sex.
Disadvantages	More space per person for a cubicle based layout.	
<b>Operating costs</b> Advantages	Reduced staffing cost for supervision.	
Disadvantages	Cubicles require additional maintenance.	Staff of both sexes required for supervision. Cannot be supervised from the pool side.

Table 4

### Benches, coat hooks and lockers



Cantilevered benches in a group changing room allow easy cleaning of the floor. A wall-hung heating source is located under the bench

Benches should be cantilevered wherever possible as it is difficult to clean floor areas around bench feet and reduces risk of corrosion to frame connections to floor. Proprietary systems with cast aluminium or galvanised steel supporting brackets are available with either hardwood or solid laminate slats.

Vandal-resistant clothes hooks with short projections should be selected and securely fixed to the walls.

For calculating the number of lockers required, see typical calculation examples on pages 44-45.

Lockers are generally manufactured in columns of approximately 1.8 m high x 0.3 m wide x 0.5-0.6 m deep. This unit can provide a full-height single locker unit or be split by intermediate dividers into smaller, individual lockers: half, third or quarter height units. However, in order to accommodate sports bags, a proportion of the lockers should be at least 0.4 m wide.

A general rule is to provide half-height units for 50-70% of the total locker provision with the balance split equally between quarter and full height units.

Some lockers should be large enough to store a collapsed pushchair or for people with disabilities wishing to store artificial limbs or walking aids<sup>31</sup>.

The dispersal of lockers is the preferred option, located close to where people change. However, concentration allows staff supervision and better security, but bathers have to carry their clothes a greater distance and with children in particular, there is a risk of dropping them on a wet floor.

**Clear views from changing cubicles and lockers assist customer orientation.**

**Locating lockers opposite cubicles reduces the risk of dropping clothes onto a wet floor.**

In order to cater for varying numbers of male and female users within a separate-sex open-plan changing arrangement, concentrating lockers in a mixed-sex locker area provides the required flexibility. If this is not provided, each open-plan area will need sufficient lockers to accommodate the maximum possible number of users in the pool, taking into account people using buffer changing during public sessions.

Lockers in buffer or group changing rooms are not recommended since they cannot be easily supervised and may be a target for vandalism.



<sup>31</sup> See Separate Sport England Design Guidance Note *Accessible Sports Facilities* for recommendations on the numbers of full-height lockers.

See [www.efds.co.uk](http://www.efds.co.uk) for general information on gyms.

### Toilets

Toilets should generally be provided in accordance with *BS 6465: 2006 Part 1 Table 12*<sup>32</sup>. They should be sited in a prominent position on the route from the changing area to the pool hall, before any pre-swim shower provision. This can be difficult to achieve with mixed-sex 'village' changing layouts where the circulation routes between rows of changing cubicles may lead directly onto the pool surround. Some repetitive circulation is inevitable as the toilets are normally located to one side of the changing area.

Separate-sex toilets are required and need to be designed to accommodate users with disabilities. In small pools it is more economical to provide a separate accessible unisex WC compartment. This can be planned with access from the pool surround. The toilet design/layout should ensure:

- The toilet and urinal area is screened for privacy
- There are no hidden areas to hinder staff supervision
- There is sufficient circulation space to enable easy access for wheelchair users
- Regular cleaning with a hose
- Robust water-resistant and vandal proof fittings.



**Toilet area with urinals designed for people of varying heights**

### Showers

Shower provision should be in accordance with *BS 6465 Part 1 Table 12* and based on a 50% male and 50% female use of the pool.

For reasons of swimming water hygiene, pre-swim showers should be positioned to encourage their



**Showers en route to the pool, with lockers close-by**

use prior to pool entry. Therefore, they should be positioned close to the pool surround.

In contrast, post-swim shower cubicles should be positioned as close as possible to the lockers in a mixed-sex village changing area or within individual male and female changing areas so that swimmers can conveniently retrieve their soap and towels.

Where cost is a factor, showers can cater for both pre and post-swim needs in one area. They can be planned close to the pool hall or in a recess off the pool surround to allow indirect staff supervision.



**Pre-swim showers along poolside with dividing barrier**

Attention should be given to adequate drainage and slip-resistance of the floors to shower areas, to prevent soap creating a hazard<sup>33</sup>.

Footbaths are not considered an effective method of cleaning feet and are an impediment to disabled people – these should not be used. Foot sprays are an alternative, although

<sup>32</sup> This version of the standard creates some anomalies and some reductions may be appropriate subject to agreement with the Local Authorities. See notes in *Changing room calculation example using the 'Standard Method'* on pages 44-45.

<sup>33</sup> Slip resistance should take into account the HSE Slips and Trips Information Sheet: 'Assessing the slip resistance of flooring' and the UK Slip Resistance Group Guidelines.

well-positioned showers that encourage use prior to swimming are the best option. The shower design and layout should ensure:

- Adequate warm water consistent with water economy
- Dirty water is prevented from entering the pool or, in a deck level pool, the surround channel
- Showers are planned without stepped thresholds and use appropriate falls and floor drainage channels or gullies to remove water
- A number of fully enclosed showers for post-swim showering
- There are waste receptacles close to the shower area for empty shampoo bottles and sachets
- Drop-down shower seats are provided for users with disabilities.

### Vanity areas

Vanity areas are also covered by *BS 6465 Part 1* being calculated as a proportion of the locker provision. They can operate as mixed-sex areas, but should be generously sized to cater for through traffic and peak use.



**Vanity area within main changing zone with appropriate storage and hair drying equipment**

The following equipment should be provided:

- Hand-held hairdryers
- Well-lit mirrors
- A shelf, at least 300 mm deep, to accommodate bags and small items such as combs.

Mirrors and shelves should be located for ease of access by people of all heights including wheelchair users.

### Extract from *BS 6465: Part 1: 2006 – Table 12 – Minimum provision of sanitary appliances for swimming pools*

See pages 44 and 45 for example calculations

Sanitary appliance	For male pool users	For female pool users
WC	2 for up to 100 males; plus 1 for every additional 100 males or part thereof	1 per 5 females up to 50 females <sup>1</sup> ; plus 1 for every additional 10 females or part thereof up to 100 females; plus 1 per 50 females or part thereof thereafter.
Ambulant WC cubicle	At least 1 ambulant accessible WC cubicle (min 800 mm wide) for ambulant disabled people should be provided in separate sex toilets.	
Wider ambulant WC cubicle	Additionally to the above ambulant accessible WC cubicle provision, where there are four or more WC cubicles in a toilet (in addition to the unisex facility), 1 wider WC cubicle 1200 mm wide, for people who need extra space should be provided in both male and female separate sex toilets.	
Urinal	1 per 20 males up to 100; and 1 per 80 males or part thereafter	–
Washbasin	1 per WC, plus 1 per 5 urinals or part thereof	1, plus 1 per 2 WCs or part thereof
Shower	1 per 10 males or part thereof	1 per 10 females or part thereof
Nappy changing	This may be a nappy changing bench and disposal bin in an area adjacent to a WC and washbasin, or in one or more dedicated parent and child toilets. Where baby changing facilities are provided, they should be accessible to disabled people.	
Cleaners sinks and storage	1 per each 100 m <sup>2</sup>	
Vanity places	1 per 30 lockers for men and 1 per 20 lockers for women.	

<sup>1</sup> Where female pool users will not be using the pool in timed sessions, i.e. will not be changing at the same time, 1 WC per 10 females will be acceptable.

**Table 5**

### Calculating numbers

The standard methodology for assessing the maximum number of changing spaces required is based on:

- Number of spaces required for a steady state condition i.e. when there is a steady flow of bathers into and out of the pool
- Additional spaces to accommodate call-out groups – or more commonly referred to as session groups. During peak periods, the time spent in the pool may have to be limited and this is normally achieved by giving bathers a coloured wrist or ankle band. Each session has a set minimum time after which the users are ‘called out’ of the pool depending on their band colour, to make way for others

- An allowance of 10% for changing spaces temporarily out of use, for example for cleaning during busy times
- Deciding upon the proportions of single, double, family/disabled changing cubicles and single-sex areas with buffer changing zones
- Additional group changing for schools and swimming clubs or as an additional buffer area.

Typical calculations are shown on pages 44-45.

The operator’s views should be sought on factors such as:

- Proposed programme of activities
- Maximum pool capacity
- Average swim-time
- Number of session call-out groups to be accommodated.

For village changing, the general disposition of spaces should allow for equal numbers of single and double-sized cubicles and for changing rooms for family groups and people with disabilities.

	20m Community Pool	25m Community / Competition Pool	50m Competition Pool
<b>Accessible changing provision for pool use</b>			
Unisex accessible changing room with wc	●	●	2*
In addition provide an accessible changing cubicle within the main changing area	○	●	●
In addition to provide a unisex ‘Changing Places’ changing room that can be accessed from the pool changing area	○	●	●
Disabled/family cubicles within the main changing area	2	4 - 6	6 - 8
<b>Accessible toilet provision in pool changing areas</b>			
Dedicated unisex accessible WC compartment on each floor (in addition to any provision within unisex accessible changing above)*	○	●	●
Provide a minimum of at least one cubicle each within the general male and female toilets suitable for an ambulant disabled person**	○	●	●
<b>Accessible toilet provision serving public / non-changing areas</b>			
Unisex accessible WC compartment on each floor (in addition to any provision within unisex accessible changing above)*	●	●	●
Changing Places provision: accessible from public spaces	○	●	●
<b>Key:</b> ● Required ○ Recommended			
<b>Notes:</b>			
See ‘Accessible Sports Facilities’ Design Guidance Note for details of the layouts for the above facilities.			
* The above figures are the minimum and should be increased if necessary to reflect the anticipated amount of use and the relationship to the individual facilities. Unisex accessible changing facilities must be located wherever there is general changing provision.			
** Additionally, where there are four or more WC cubicles (in addition to the unisex facility), one larger WC cubicle 1200 mm wide, for people who need extra space, should be provided in both male and female separate sex toilets (See BS 6465-1:2006 Section 7)			

**Table 6 Accessible changing and toilet provision**



**Village changing circulation areas should be adequate for wheelchair access and peak programme sessions**

### Changing room calculation example using the 'Standard Method'<sup>34</sup>

Table 7

Pool Water Area			Notes
Pool 1	Main pool 25 x 13m	325.00	m <sup>2</sup>
Pool 2	Learner pool 13 x 7m	91.00	m <sup>2</sup>
		<b>416.00</b>	m <sup>2</sup> - Total water area to be served by the changing rooms
<b>Step 1</b>	<b>Steady state condition</b>		
a	Any one time capacity = water area ÷ 3	138.66	◀ HSE publication HSG179 <i>Managing Health &amp; Safety in Swimming Pools</i> : para 203 recommends 3 m <sup>2</sup> /person as a start point for calculating the maximum numbers for un-programmed swimming sessions. However, lower maximum occupancy numbers can be calculated back from particular programme sessions such as 'lane swimming' or 'aqua aerobics'. The ASA advise that 6 m <sup>2</sup> /person is the minimum for comfortable swimming in a general swimming session. Any use of a pool should be subject to a full risk assessment.
b	Assumed time in pool hall (hours)	0.75	◀ To be discussed with operator. Longer times of say 1 hour are likely in leisure pools
c	Number changing per hour = a ÷ b	184.88	
d	Number of places required = c ÷ 4.5	41.09	◀ 4.5 is calculated by assuming an average time for changing of approx 13 minutes and dividing it into 1 hour
<b>Step 2</b>	<b>Call-out groups</b>		
e	Number of groups (Operators policy)	5	
f	Number in call out groups = a ÷ e	27.73	
g	Discount call out group by 20% = f x 80%	22.18	Allowing for swimmers who do not stay in pool for the full call out session
h	Add 50% of d	20.54	Allowing for new people coming into changing rooms
i	Number of spaces required = g + h	42.72	
<b>Step 3</b>	<b>Spaces out of use</b>		
j	Add 10% for spaces out of use	4.27	
k	Total number of spaces required =	47	
<b>Step 4</b>	<b>Decide on the mix of changing space types</b>		
	<b>Option 1</b>		
	Mixed sex area / Village changing		See Example 1 - Village changing layout on page 38
l	Single cubicles required k ÷ 3	15.67	16 people
m	Double cubicles required k ÷ 3	15.67	32 people
n	Four person family / disabled	4	See Sport England Design Guidance Note 'Accessible Sports Facilities'
o	Equality provision: unisex changing room	1	See Sport England Design Guidance Note 'Accessible Sports Facilities'
p	Flexibility to give privacy for sensitive groups		See typical plan page 28

<sup>34</sup> From *Handbook of Sport and Recreation Building Design. Volume 3: Swimming Pools and Ice Rinks.*

	<b>Option 2</b>			
	Separate sex changing with cubicles and integrated group changing areas		◀	See Example 2 - Separate male and female layout on page 38
	Ensure that the arrangement has flexibility to accommodate different proportions of male and female. i.e. 1/3 male, female and buffer			
	<b>Allowance for groups</b>	40		Required in ADDITION to 'k' in order to cater for school classes, use by a swimming club, or use as a separate 'private' changing area for particular users [1] [1] Cubicles are preferred by women
	Additional group changing rooms (minimum capacity 20 places x 2 = 40)			
<b>Step 5</b>	<b>Locker provision</b>			
s	75% of the any one time capacity = a x 75%	103.9	◀	Allow lockers with coat hooks for additional group changing rooms if they are accessed directly from the communal changing and not lockable
t	Plus number of people in changing room = k	47	◀	To allow for peak times
u	Plus 10 % = (s + t) x 110%	166	◀	To allow for lockers out of use
<b>Step 6</b>	<b>Sanitary appliances</b>			
v	Male occupancy = a x 50% = 69	69	◀	<p>As BS 6465: Part 1: 2006, Table 12 (see table on page 39 of this guidance note) based on 50% male and 50% female of total number of people using the facility.</p> <p>HOWEVER, there seems to be general agreement that this standard can give some anomalies. In this example these include:</p> <ul style="list-style-type: none"> <li>• Accessible wider toilets in the female toilets but none in male toilets</li> <li>• The female WC provision seems out of balance with the male wc+urinal provision even taking into account differences in use pattern between the genders</li> <li>• Large variation between calculations for female wc's and hand basins for 'timed' and 'untimed' swimming sessions. <sup>36</sup></li> <li>• Cleaners store should be provided.</li> </ul> <p>The figures marked with an * (3<sup>rd</sup> column) are suggested by Sport England as a reasonable adjustment to BS 6465-1 2006 recommendations (2<sup>nd</sup> column) in order to remove the anomalies. These should be discussed with the operator and agreed with the building control officers.</p>
	WC's 2 for up to 100 = 2 <sup>35</sup>	2		
	Urinals 1 per 20 = 4	3*	◀	
	Hand basins 1 per WC +1 per 5 urinals = 3	3		
	Showers 1 per 10 = 7	7		
	Vanity places 1 per 30 = 3	3		
	Wider ambulant accessible WC 1 for 4 or more WC's = 0	1*	◀	
	Female occupancy = a x 50% = 69	69		
	WCs 1 per 10 <sup>35</sup> up to 50 + 1 per 100 thereafter = 7 <sup>36</sup>	4*	◀	
	Hand basins 1 + 1 per 2 WC's = 5 <sup>36</sup>	5		
	Showers 1 per 10 = 7	7		
	Vanity places 1 per 20 = 4	3*	◀	
	Wider ambulant accessible WC 1 for 4 or more WC's = 1 <sup>36</sup>	1	◀	
	Nappy changing to be provided (in the unisex disabled changing / WC and in wider ambulant WCs in male and female toilets)	3		
	Drinking water may be provided			
	Cleaners rooms 1 where over 100 m <sup>2</sup> = 1	1	◀	

<sup>35</sup> BS 6465 Part 1: 2006 requires one of which to be an ambulant accessible WC see page 43.

<sup>36</sup> Figures are calculated as BS 6465 Part 1: 2006 on the basis that females will not be changing in timed sessions. See table on page 42.

### Ancillary accommodation

#### Office accommodation

The extent of office accommodation will vary according to the size of the building, the level of administrative duties and whether other on-site accommodation can be used, for example, school and college offices or the staff room.

A local neighbourhood/community centre housing a 20 m or 25 m pool and sports hall requires:

- Manager's office large enough to accommodate up to six people
- Duty officer's accommodation with work stations for up to three people
- General office, either separate or linked to the reception desk, with a workstation for one person.

In a small pool building on a school or college site a combined reception desk/office should be sufficient. A space of 3.5 x 2.5 m can accommodate two or three people.

Larger facilities may need more extensive provision and the pool operator should be consulted early in the design process in order to tailor the design to suit operational needs.

#### Staff room and changing

Staff accommodation should be independent from public facilities and located away from the main activity areas. It should be easily accessible and located so that staff can respond quickly if called to an emergency.

A local neighbourhood pool should include a small restroom with tables, chairs, sink/drain unit, cupboards and small cooker including a microwave. Individual lockers should be provided for staff. Other needs may be met by public facilities.

A larger centre will require individual male and female changing rooms and should include bench seating, lockers, a staff shower or shower cubicles, and toilets. Dedicated accessible changing provision should also be included for staff with disabilities.

#### Cleaners store

For storage of cleaning equipment, materials and provision of a cleaner's sink, see *BS 6465 Part 1*.

#### External service yard

A secure external service yard should be provided for refuse storage. Refuse bins can be vandalised by fire and should be located to prevent fire

spreading to the main building. The bins should be screened and the area can be combined with access to the plant room to form a service delivery/storage area.

#### First aid room

The first aid room should be directly accessible from the poolside with separate external access to a parking area for emergency vehicles. Doorways should provide a minimum clear width of 1.1 m, and be positioned to allow stretcher access.

A minimum area of 9.0-10.0 m<sup>2</sup> is recommended, excluding any toilet provision. Space for a couch or stretcher trolley, stretcher, chair, sink and lockable wall cupboard should be provided.

The couch should be located with access space on all sides, and not be located against a wall. The provision of an en-suite accessible toilet would also be useful. In pools where major competitions take place, this would allow the first aid room to double as a doping control room.

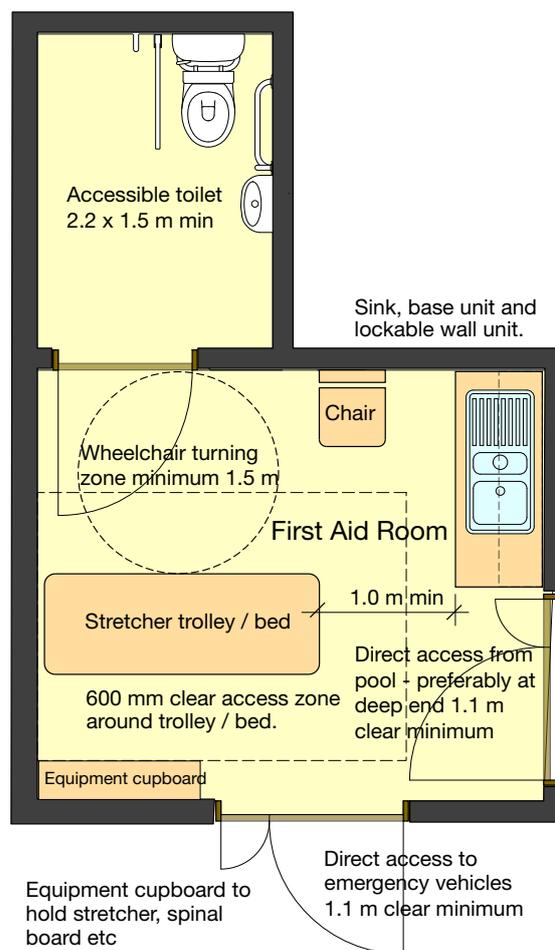


Figure 19 Preferred first aid room layout

### Pool equipment store

The pool equipment store should be directly accessible from the poolside and have sufficient space for storage of swimming aids, float lines, starting blocks, backstroke warning flag lines, false start recall line and lane ropes, depending on the depth of the pool and whether it is used for competition and training.

Swimming aids can be stored in movable trolleys inside the store. Lane ropes can be stored on reels on the pool surround as long as the minimum pool surround widths are not compromised. Alternatively, lane ropes may be stored in a hopper located in an undercroft beneath the pool surround (see photograph adjacent).

Storage space may be needed for water polo goals, pitch markings and timing panels. Additional space may also be required for stackable chairs and podia for competition events. It should be assumed that all equipment may get wet - the store area should have a well-drained tiled floor and adequate ventilation to remove smells and prevent corrosion of the stored equipment. The store may also be used to accommodate pool cleaning equipment. A hose down point should be located in the store or inside a cupboard in the pool hall.

Other items such as inflatable play equipment can require a lot of space. Canoes can be hung from wall-mounted brackets in the pool store, or in the absence of adequate space, wall-mounted near the pool. Transfer equipment and wheelchairs may also need to be accommodated.

Access doors should have a clear width of at least 1.1 m and there should be sufficient space for easy access.

Pools with bulkheads will require additional storage for lane ropes of differing lengths e.g. 50 m pools with a bulkhead will require storage for 50 m and 25 m ropes. Additionally, 50 m pools will require adequate storage for floating goals.

The overall size of the store will depend on the range of activities scheduled and a comprehensive schedule of equipment required.

The pool equipment store area can be estimated at an early stage of a project to be between 10% and 20% of the total area of the pool(s) water.



**An alternative to storing lane ropes in a pool store – lane ropes can be stored in hoppers in the pool undercroft and accessed through stainless steel covers set into the pool end surround**

### Spectator and competitor provision

Viewing provision in a swimming pool building generally falls into the following broad categories:

- **Informal viewing:**

Views from one area to another, for user's understanding of the layout and visual interest. It can also help in the operation of the building and allow a degree of supervision. Viewing can be from both external and internal circulation routes or from supporting areas such as the café or reception area.

- **Formal viewing:**

Viewing from fixed seating, often in stepped tiers along the long side of the main pool, usually provided where there will be a significant element of competitive swimming.

- **Pool surrounds:**

Seating along the pool surround is usually limited to use for swimmers or for competitors during events. Subject to location, operational issues and accessibility, the surrounds may be used as occasional temporary spectator seating for small galas although careful consideration should be given to the control of foot traffic on the pool surround.

Spectator seating can add significantly to the cost of a project. Advice from the ASA Facilities Department should be sought in establishing justification<sup>37</sup> and appropriate capacity.

Pool size	Spectator seating	Competitor seating *
50 m - 10 lanes	500 / 600	300
50 m - 8 lanes	350 / 400	300
50 m - 6 lanes	200	200
25 m - 8 lanes	250 min	250
25 m - 6 lanes	150 min	180

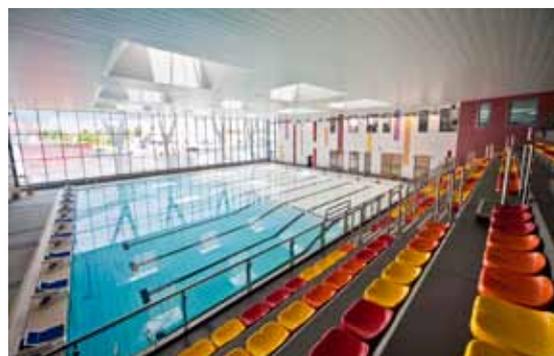
Where pools are designed to stage Regional or National events on a regular basis the number of seats for spectators and / or swimmers may need to be increased.

\* Poolside seating

**Table 8 Guide to seating capacity if swimming competitions are held on a regular basis**

Cost increases are likely due to a range of issues including additional floor area and volume, impact upon sanitary, heating and ventilation systems, additional access requirements, fire escapes, parking and storage within the building.

<sup>37</sup> See page 9 section on *Levels of competition*



25 m pool with formal spectator viewing

### Sight line geometry

It is important that spectators have a good view of the whole pool water, the pool ends and score board(s). The design of the sight line geometry needs to be carefully considered.

### **Spectator seating should be designed to meet:**

- **Guide to Safety at Sports Grounds - (The Green Guide)**
- **BSEN 13200 Part 1**
- **BS 9999: 2008 Code of practice for fire safety in the design, management and use of buildings.**

'The Green Guide' states the maximum angle of seating rake should not exceed 34°.

The 'C value' or distance of the sight line above the head of the person in the row in front and the 'focus point' are indicated in Figure 20 on page 49. The minimum 'C value' should be 0.090 m, but 0.120 m is preferred.

The ability to achieve an adequate 'C value' can become progressively more difficult with each tier of seating. The worst case location should therefore be checked.

Generally, the higher the spectator seating, the further the seating will need to be from the focus point. The space below the seating might be useable for changing rooms or pool storage depending on the layout of a particular project and the height the seating is installed at. The provision of vomitories may be necessary to allow height clearance at access points to the pool.

Ideally, sight lines should relate to a focus point at the edge of the pool, particularly in 10-lane pools where all lanes may be used (See red lines on the

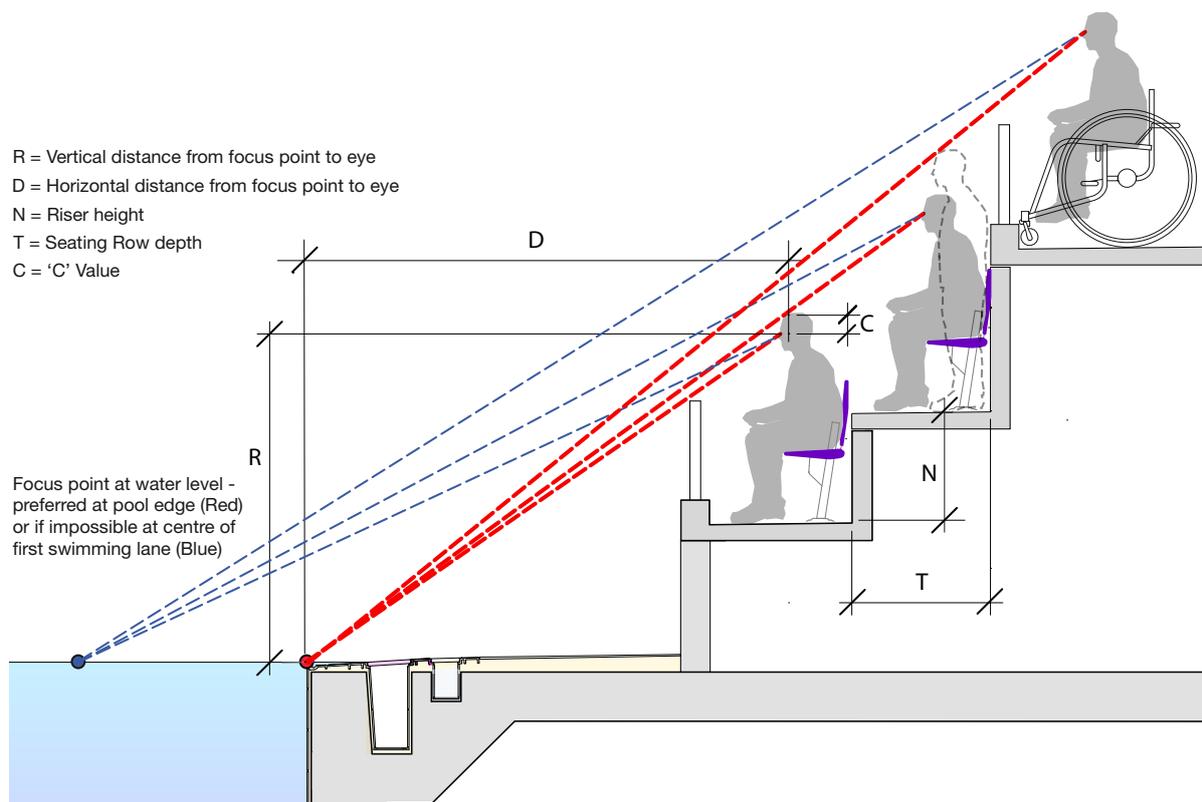


Figure 20 Example of spectator seating design

following example). However, where this is not possible the sight lines should be taken from a focus point located at the centre of the first lane at water level (blue lines on the above example).

Riser heights and seating row depths will generally be a function of multiples of 0.28 m minimum goings and 0.19 m maximum risers in order to comply with *BS 9999:2008* and *'The Green Guide'* for radial gangways.

### Accessibility

Accessibility for wheelchair users needs to be considered early in the design. In very large facilities wheelchair accessibility should be distributed across the seating levels<sup>38</sup>. However for smaller facilities, accessibility may only be practical at poolside and/or the uppermost level of the seating.

The position and height of wheelchair spaces should also take into account the likelihood of spectators standing in the rows in front, as shown in the above diagram.

### Seating types

The type of seating will depend on use and scale of the seating provision as follows:

- Competitor poolside seating is commonly a ceramic tiled ledge, possibly heated for bather comfort

- Spectator seating for small pools may be formed from a simple continuous laminate slat usually without a back rest, fixed to each concrete tier
- Intermediate spectator seating will generally be as for small pools, but be provided with a fixed backrest, or individual moulded plastic seat squabs with integral backrest, directly fixed to each concrete tier
- Larger pools will generally include individual spectator seats consisting of a coated metal support frame, fixed plastic backrest and tilting seat squab, to allow easy access between rows. All framing materials should resist a pool hall environment.

### Conflict with the need for privacy

There is a potential conflict between open views into the pool water areas and the need for privacy for certain sensitive user groups. The addition of easily operated blinds or other screening devices should be considered for all the glazing to the pool hall and/or the learner pool.

### Environmental conditions

See Appendix 2 *Servicing the Building* for environmental conditions that should be created for formal spectator seating when located within a pool hall enclosure.

<sup>38</sup> Refer to *Accessible Sports Facilities Design Guidance Note* available from the Sport England web site.

### 6.0 Use and Aftercare

#### Key operational/design issues

The following issues are often overlooked in new projects and should be the subject of early discussions with operators.

Reception as the hub of both normal and emergency communications	<ul style="list-style-type: none"> <li>Pool alarms, security, fire etc (all with different sounds)</li> <li>Public address and radio system (audible in all areas)</li> <li>Background music must be linked to a fire alarm override</li> <li>All turnstiles need to be linked to the fire alarm system to allow an unrestricted flow in an emergency or power failure</li> <li>Fire alarm indication panel</li> <li>Fireman's switch</li> </ul>
Zones of supervision for staff	<ul style="list-style-type: none"> <li>Closing off areas not in use</li> <li>Staff alarm points</li> <li>Extent of visual supervision</li> </ul>
Safe demarcation of deep water	<i>BS EN 15288 Part 1</i> requires a 100 mm wide demarcation line in a conspicuous colour across the pool tank floor at the 1.35 m depth point to aid lifeguard supervision (where a separation barrier is also required it should be 0.5 m before this point).
Maintenance of lights at high level	Scaffold towers or 'cherry pickers' often require the use of stabilising out riggers or anchorage points to cope with the gradient of the floor on pool surrounds
Delivery of bulk chemicals	The pool chemical supplier needs to be contacted in the early stages of the design to ensure that the safe delivery of bulk chemicals is considered including: <ul style="list-style-type: none"> <li>Access width</li> <li>Pipe coupling details</li> <li>Wash down and hose points</li> <li>Additional safety features</li> </ul>

Table 9

#### Key maintenance issues

Swimming pools are generally subjected to continuous and prolonged heavy use having to cope with high levels of pollution and aggressive environmental conditions that can significantly increase wear and tear and affect the life of the facilities.

The ability to keep the building looking attractive, fresh and clean throughout its lifetime will depend upon:

- The standard of the design of the facility
- The quality and suitability of materials selected in the construction and finishes

- Attainment of high-quality workmanship during construction
- The occupancy of the facility within the range identified at the design stage. If a pool attracts a higher number of users than expected or designed for, this can lead to accelerated wear and tear requiring more regular maintenance and repair
- Regular servicing and correct operation of all environmental systems
- Regular and appropriate cleaning and maintenance of the building necessary for the level of use and to include making good damage or faults at early stages so that they do not contribute to long-term degradation of finishes
- Training of staff in cleaning and maintenance duties and appropriate work schedules and supervision.

All of the above points are important, but regardless of the quality of the design or construction, if the building is not maintained at levels appropriate to its use, the life of the building can be rapidly degraded.

During the design stages, it is important that the operator is consulted to ensure that the design does not require unreasonable levels of maintenance once in use. Equally, on completion of any project, clear cleaning and maintenance strategies should be established to advise the operator on how best to maintain the building and obtain the best use from it.

***Inappropriate levels of maintenance can rapidly shorten the life expectancy of the building.***

There are a number of important issues that should be particularly considered by pool operators. These include:

#### Entrance control

Entry mats / floor surfaces at the main building entrances should be kept effective and regularly cleaned to minimise the influx of shoe borne debris etc.

During periods of extended inclement weather, the operator may need to initiate additional measures to improve removal of debris from shoes prior to entry to the changing rooms. Increased cleaning measures may also be needed.

### Ceramic tiling

Ceramic tile slip-resistance can be substantially degraded by the build-up of debris and pollutants (including dead skin, body fats, bacteria and limescale).

The operator's cleaning and maintenance regime must take into account the recommendations of the Tiling Association literature *The Cleaning of Ceramic Tiles*<sup>39</sup> when maintaining the tiles.

### Showers

The operator should effectively promote a pre-swim shower regime for bathers to minimise body pollutants being carried into the pool hall and the pool itself.

Use of shower gels and shampoos should be limited to enclosed shower cubicles and not be used in open showers, particularly those forming part of a circulation route.

### Washing down

Wet tiled floor areas may be washed down with a hose after the surface chemical cleaning is complete. Appropriate lockable hose points and drainage channels or gullies should be provided. However jet or pressure washers must not be used as these will have deleterious effects upon tile grout and other surrounding materials.

Washing down should be used in conjunction with a regular cleaning regime using appropriate cleaning materials to remove surface pollutants and limescale, as noted for ceramic tiling above.

Wash-down water should not be sprayed indiscriminately, as this can have detrimental effects upon fixtures and fittings including doors, door frames, lockers etc.

### Drainage channels

Pool surrounds:

- Contamination of the pool water by water flowing on to or from the pool surrounds, in particular during cleaning, must be avoided<sup>40</sup>
- Care must be taken to ensure slip-resistance is maintained on the grilles over the drainage channels.

See section on *Pool and pool surround drainage principles* in Appendix 1 and *Finishes to wet areas* in Appendix 3.

<sup>39</sup> The Tile Association <http://www.tiles.org.uk>

<sup>40</sup> BSEN 15288-1: 2008 requires the pool surround to be designed to avoid contamination of the pool water by water flowing on to the floor.

Changing rooms:

- Gratings should be lifted at the end of each day and the channels should be hosed down to flush away hair / body fat build up. Use of bactericide recommended for use within pool environments should be used regularly to further improve hygiene.
- Inadequate falls on floors and badly located drainage gullies can mean that water is left to pond on the floor and increase the risk of accidents and clothing accidentally dropped into standing water.

### Stainless steel

Stainless steel will need to be regularly cleaned and the following should be taken into account:

- All bare stainless steel elements around the pool should be washed down on a daily basis with clean water
- The stainless steel should be wiped over with a clean cloth on a monthly basis
- The recommendations of the British Stainless Steel Association (BSSA) and Nickel Development Institute (NiDI) should be followed
- Carbon steel brushes of wire wool, or any abrasives (including abrasive cleaning compounds) should not be used as this will damage the surface and increase surface staining
- Any chemical cleaning products must be suitable for use on stainless steel
- Designed environmental conditions within the pool hall must be maintained<sup>41</sup>.



<sup>41</sup> See Appendix 3 section on *Stainless steel in the pool hall environment*.



## Alternative Languages and Formats:

This document can be provided in alternative languages, or alternative formats such as large print, Braille, tape and on disk upon request.

Call the Sport England switchboard on 08458 508 508 for more details.

## Information Prepared by:

Sport England, Robin Wilson Consulting & S&P Architects

## Acknowledgements:

Sport England thank the following individuals and organisations for their contribution:

Amateur Swimming Association

Arcblue

Barr + Wray

CIMSPA / PWTAG: Ralph Riley

David Boshier

Carlos Dublanc

Feilden Clegg Bradley: Andy Couling

Health & Safety Executive

Hufton + Crow

Kirby Swim Equip Pty Limited

Greenwich Leisure Ltd: Roy Clarke

LA Architects: Mike Lawless

MSG Consult: Malcolm Graham

Myrtha Pools

Powermaster Ltd.

Roberts Limbrick: Philip Dryden

Andrew Southall

S&P Architects

The Access Consultancy: Brian Towers

Tim Ronalds Architects

Charlotte Wood

John Whitby

## User Guide

Before using this guidance for any specific projects all users should refer to the User Guide to understand when and how to use the guidance as well as understanding the limitations of use.

Click here for **'User Guide'**

Click here for current **'Design and Cost Guidance'**

## Issue Tracker

004 – Updated guidance reformatted with separate appendices: May 2013

003 – Updated guidance: February 2011

002 – Minor text amendments: April 2008

001 – Initial Publications: April 2008

## Sport England

3rd Floor Victoria House

Bloomsbury Square

London

WC1B 4SE

Tel : +44 (0)8458 508 508



ISBN 978-1-86078-273-2

© Sport England, May 2013

## Further Information:

To find out more about Sport England and to get the latest news and information about our various initiatives and programmes, please go to [www.sportengland.org](http://www.sportengland.org)