3.4 TENNIS CLUBHOUSE PLANNING AND DESIGN

Tennis clubhouses play a vital role in the overall function and sustainability of tennis venues. They provide a space for social connection, a point of sale to drive revenue and a base from which to conduct and promote activities.

Any tennis clubhouse or related project should be based on a sound foundation of club, community, Member Association and local council consultation in line with the project planning processes (**Section 2.1 Facility planning process**).

Informed business and management planning should precede design processes to ensure that clubhouses and their spaces adequately reflect both tennis and community needs, and they are functional to ensure that the club, users and the venue itself remains viable and sustainable.

When looking to plan and design a new tennis clubhouse or refurbish / redevelop an existing facility, the design and size of the development will depend on a range of factors, including:

- Purpose of the venue and role within the local venue network
- Physical size and orientation of the site
- Proposed management model (e.g. volunteer club managed or professionally operated)
- Demographic of users and their requirements
- Circulation between the point of entry, clubhouse and courts
- Proposed activity mix schedule
- Location of car parking and site access points
- Available budget
- Consider accessibility planning – wheelchair athletes, special schools or community groups

In seeking to design a functional, sustainable and efficient tennis clubhouse, the following information is presented within this section:

Primary audience

This section has primarily been designed for:

- Community tennis clubs, associations, venue operators and educational institutions
- Local Government
- State and Territory Government
- State and Territory Member Associations
- Architects, planners, developers, designers and builders

Definitions

Accommodation brief – Detailed document generally prepared by an architect / building designer that expands upon a project brief and outlines the specific space and area requirements for the design of a building.

Building application (BA) – Building applications to obtain building approval are required for most developments to ensure building complies with relevant laws and the Building Code of Australia. Building approval is usually obtained by submitting a building application to a relevant Planning Authority (mainly local council).

Concept floor plans – Architectural sketch plans that present a very high level or conceptual representation of a clubhouse design idea. The plans show a general arrangement of spaces and their functional relationship with each other (i.e. spaces that should be located adjacent to each other to create the most functional and efficient floor plan layout).

Cross flow ventilation – Also referenced as natural ventilation in this context. The process of supplying air to and removing air from an indoor space without using mechanical systems. Cross flow ventilation via open doors and windows is an effective method of achieving cross flow ventilation within a clubhouse building.

Development application (DA) – Formal request to a relevant Planning Authority (mainly local council) for consent to carry out a development.

Design brief – Document usually prepared by an Architect or Building Designer that presents a detailed description of the proposed accommodation elements, materials and finishes for the clubhouse. This document is sometimes included within the Project Brief or Accommodation Brief.

ESD (Environmentally Sustainable Design) – The consideration of the long term environmental impact of the clubhouse by adopting 'green initiatives' in the design process by way of considered siting, material selection and performance criteria for the building.

Heat load – Amount of heat energy that would need to be added to a space to maintain the temperature in an acceptable range. Cooling load is the amount of heat energy that would need to be removed from a space to maintain the temperature in an acceptable range.

ITF sized courts – Tennis courts that are sized to satisfy ITF (International Tennis Federation) requirements which are able to support events sanctioned by the governing body.

Line of sight – Degree of visibility a spectator or player has specifically from the clubhouse or verandah level towards a tennis court's playing surface. A clear uninterrupted line of sight to the court is desirable to create the ideal spectator experience.

Management model – Proposed manner in which the facility is to be managed (i.e. via volunteer club committee or by professionally appointed facility managers).

Multi-purpose community space – Term given to a space within a clubhouse design that offers flexibility of use for a range of potential stakeholders and facility users that can be accessed independently either during or after hours.

Project brief – Also commonly referred to as a Scope of Works, this is the process of defining the requirements of the facility project. The project brief is the key document upon which the design will be based.

Shallow footings – Foundation type that transfers loads very near to the surface

Show courts – Term used for the main tennis courts usually located close to and directly visible from the main social area. Depending upon the proposed management model and size of events to be held at the venue, these courts ideally should be sized to satisfy ITF dimensional requirements.

Slab on ground – Foundation type that is laid directly on the ground

Solar panel arrays – Term given to a row (or rows) of roof mounted solar panels.

Strip footing – Continuous strip of concrete that spreads loads near to the surface

Stormwater detention – A typical local council or planning authority engineering requirement to detain a certain level of stormwater on site (usually in tanks) before releasing it into the stormwater system.

Standards

Australia has a number of Standards, Acts, Codes and Regulations that are relevant to tennis infrastructure planning. It is important that they are complied with and fully considered during the planning and design of tennis clubhouses and associated buildings by your Architect or Building Designer.

A list of applicable information to consider is provided below with specific links to information source:

- Australian Standards (using the version applicable) –SAI Global Australian Standards online store.
- The Human Rights and Equal Opportunity Commission (HREOC) Advisory Notes.
- The Building Code of Australia: National Construction Code (NCC, formerly the BCA) – applicable at the time a Construction Certificate is applied for.
- The National Code of Practice for the Construction Industry and the Australian Government Implementation Guidelines for the Code is available via www.abcc.gov.au.
- The Environment Protection and Biodiversity Conservation Act (1999); and the requirements of State and Territory Departments and Authorities responsible for planning and environmental matters.
- The National Standard For Construction Work document, National Occupational Health and Safety Commission - NOHSC:1016.
- The Protective Security Policy Framework (PSPF) document promulgated by the Australian Government Security Construction and Equipment Committee (SCEC).
- Work Health and Safety Acts (2011) (WHS).

In addition, all designs (new and refurbished facilities) must fully comply with the Disability Discrimination Act (DDA) and relevant Australian Standards, which include, but are not limited to the following:

- Disability Discrimination Act (1992)
- Disability (Access to Premises – Buildings) Standards 2010
- AS 1428.1 – Parts 1, 2, and 4 - Design for access and mobility.

Standards can change over time and will be the responsibility of your Architect, Building Designer and/ or Building Surveyor to be aware of the latest standards. Planning Authorities such as local councils should also be aware of the most up-to-date requirements and information as the granting authorities of building designs, permits and compliance certificates.

SECTION 3
FACILITY PLANNING, DESIGN DELIVERY AND MAINTENANCE

KEY HIGHLIGHTS

What you need to know

- Be clear in how the clubhouse will be used, managed and operated before undertaking concept design and planning.
- Seek professional Architectural or Building Design assistance to develop a Project Brief, Accommodation Brief / Design Brief to assist with Council Development Application and certification processes, as well as advice on preferred tendering and procurement options.
- Ensure that the preferred design professional has the necessary experience and expertise in tennis facility planning and design in addition to knowledge of tennis venue management and operations.
- Adopt recommended Clubhouse Design, Universal Design and ESD Principles, through construction and into venue operations to ensure the requirements of all users are considered.
- Use suggested clubhouse areas (Clubhouse Accommodation Schedule) to identify preferred clubhouse amenities, and measure proposed new spaces against the venue (or another similar venue) to help picture how your space may change or be used.

3.4.1 CLUBHOUSE DESIGN PRINCIPLES

Presented in this section is a summary of key design principles to be considered in the design process when creating a typical tennis clubhouse. These features and recommendations are equally applicable to both a new and existing tennis facility. Professional Architects and Building Designers should be aware of these principles and where possible seek to work closely with the selected stakeholder group to incorporate into the Design Brief and Concept Design phase of the project.

The principles of Universal Design, Occupational Health and Safety, and Environmental Sustainability should also be adopted and reflected through all venue management and operational activities to ensure they are fully integrated into all aspects of the tennis venue design.

Universal Design (UD)

Facilities at all levels share a commonality in that irrespective of age, gender, ability and/or cultural background, people come from all walks of life to participate and be involved. As a sport, Tennis needs to ensure current and future facilities are designed not only to encourage participation in the game, whether it be as a player, umpire, spectator, coach or club volunteer, but are also flexible in their use to cater for other community members.

Through the adoption of Universal Design Principles, tennis clubhouses and facilities can promote and facilitate inclusion for not only sporting-related users, but also community groups who use sporting venues and supporting facilities as places to meet, interact and hold events. By incorporating Universal Design Principles into facility development and operations, it enables all people to be included, without the need for differentiated or specialised/ adapted features.

Sport and Recreation Victoria provides a strong focus on Universal Design and provides online information on principles and purpose, as well as detailed design information via its Design for Everyone Guide.

Occupational Health and Safety (OH&S) and Safe Design

Section 22 of the Work Health and Safety Act 2011 refers to the 'Duties of designers of buildings and structures'. All designers are to be committed to improving Occupational Health and Safety (OHS) outcomes through Safe Design approaches. Safe design processes must integrate hazard identification and risk assessment early in the facility design and procurement process.

Environmentally Sustainable Design (ESD)

When building new or redeveloping existing clubhouse buildings and supporting facilities, it is important to reduce direct environmental impacts through the implementation of practices and design ethos such as:

- Optimising the size of new buildings and/or the potential of existing structures.
- Investing in energy efficient technologies and green energy usage through initiatives such as passive solar design and natural ventilation systems.
- Protecting and preserving water.
- Using environmentally friendly and green materials.
- Enhancing indoor environmental quality.
- Optimising operational and maintenance practices.
- Minimising waste through recycling and efficient use of resources.
- Ensuring the facilities are designed, occupied and operated with the objective of best practice environmental performance.

Many of these industry led and promoted principles are featured in the design examples and guidance within this section. Consistent with the planning process outlined in **Section 2.1 Tennis facility planning process**, there are clearly defined stages for preliminary clubhouse design that should be adopted with the view of achieving a fully resolved design solution.

Tennis specific clubhouse design features

The differences in the design of clubhouses, whether new developments or refurbishments, depends primarily upon the proposed management model and activity mix for the venue, as well as available funding.

There are general clubhouse design principles that should be applied where possible for every scale of project. These principles are presented using the annotated artist's impression in **Figure 3.4.2**. This tennis clubhouse concept is in 3D perspective, refer to cross referenced design features for associated references and explanations.

Figure 3.4.1
Clubhouse Design Process

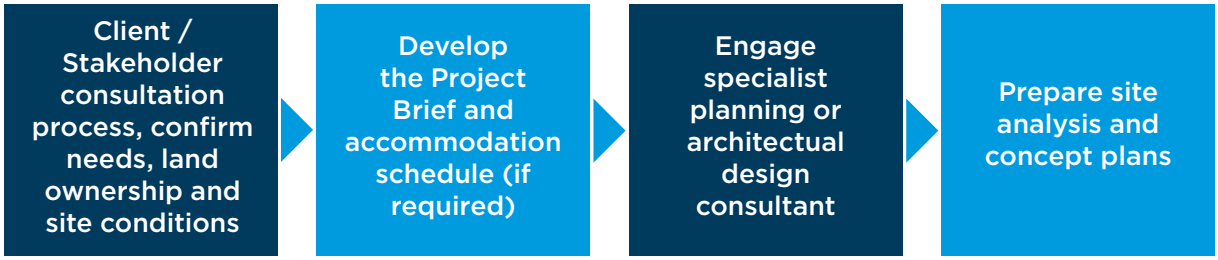


Figure 3.4.2
Clubhouse design image

A Clear entry point to the building

- The arrival point from the carpark or walkway from the site boundary needs to be clearly defined so as to act as a control point for venue management.

B Elevated building platform and walkways

- By elevating the finished floor level of the clubhouse and verandah above the surrounding court levels, spectator viewing of the courts can be greatly improved. This can also be applied to walkways between courts as shown.
- Provision of DDA compliant building access must be considered in the design.

C Tiered seating and spectator line of sight

- By elevating the building platform the opportunity exists to create tiered seating to the perimeter of the verandah or covered viewing areas to maximise the number of spectators with a clear line of sight to the courts.
- Dedicated accessible viewing areas should be established, with adjacent companion seating and seating for people with mobility impairments.

D Wide verandahs and covered viewing areas

- Weather protection for both players and spectators should be provided immediately outside the main clubroom area for patron comfort and convenience.
- Reduce the heat load on glazing (particularly on the east, north and west elevations of the building) by introducing wide verandahs and / or solar control devices such as window treatments internally and external sun shading.
- Offer general seating opportunities for spectators immediately outside of the main clubroom space.
- Provide adequate circulation space for wheelchair users and prams by incorporating ramp access and sufficient travel width.

E Maximise clubroom glazing (refer ESD Principles also for more information)

- The extent of clubhouse space glazing should be maximised with fixed glazing / full height windows and / or openable glass doors to ensure viewing to the optimum number of courts can be achieved.

- Glazing protection should be integrated into the building design for heat load management.

F Natural light into main clubroom space

- Depending on the size of the main clubroom the introduction of natural light via skylights or by other means can assist in creating a warm pleasant environment for players and spectators.

G Access provisions

- Ensure access to the clubhouse, walkways and courts are accessible for all, including wheelchair users (e.g. ramped access) and comply with all relevant BCA and DDA Standards.

H Clubhouse servicing

- Depending upon the size of the clubhouse (where practical) provide vehicular access as close to the clubhouse as possible to assist with the servicing of the kitchen / kiosk / bar and storage areas.

I Environmentally Sustainable Design (ESD) features

- Adopting an ESD approach in the design of a clubhouse facility ensures that elements and materials adopted for design and construction are sustainable and have consideration for long term impact upon the environment. Refer to **Figure 3.4.3** ESD clubhouse design concept for practical application of ESD features.
- With reference to the clubhouse concepts in **Figure 3.4.3**, the following ESD considerations should include (where practical):
  - **A** Stormwater Detention Tanks (as per local council requirements)
  - **B** Solar Panel Arrays to the roof
  - **C** Passive Solar Design principles such as:
    - **a)** building orientation and siting
    - **b)** wide verandahs to protect glazing (northern and western glazing in particular) and to reduce heat gain into the building
  - **D** Openable windows (where practical) for cross flow ventilation
  - **E** Sustainable building material selections for wall cladding, flooring, external paving materials etc.

Concept Cross Section of Tennis Clubhouse Design

The concept design below highlights Environmentally Sustainable Design (ESD) features and general recommended design features.

Equitable access

Designing for equitable access results in a venue that supports and enables use by everyone. Considerations to achieve equitable access include:

- Quality of amenities
- Entrances and exits, and how users travels around the site (e.g. from the carpark to the clubhouse)
- Recommended door widths for universal access within a clubroom is 1.35m, however it should be recognised this is not always viable and will also be subject to Building Certifier compliance advice.
- Comfort amenities such as water coolers, viewing shelters and spectator seating
- Pathway and security lighting
- Spaces with consideration for type of equipment and targeted age group
- Wayfinding and signage
- Communication systems such as PA systems and speaker locations.

Figure 3.4.3
ESD clubhouse design concept

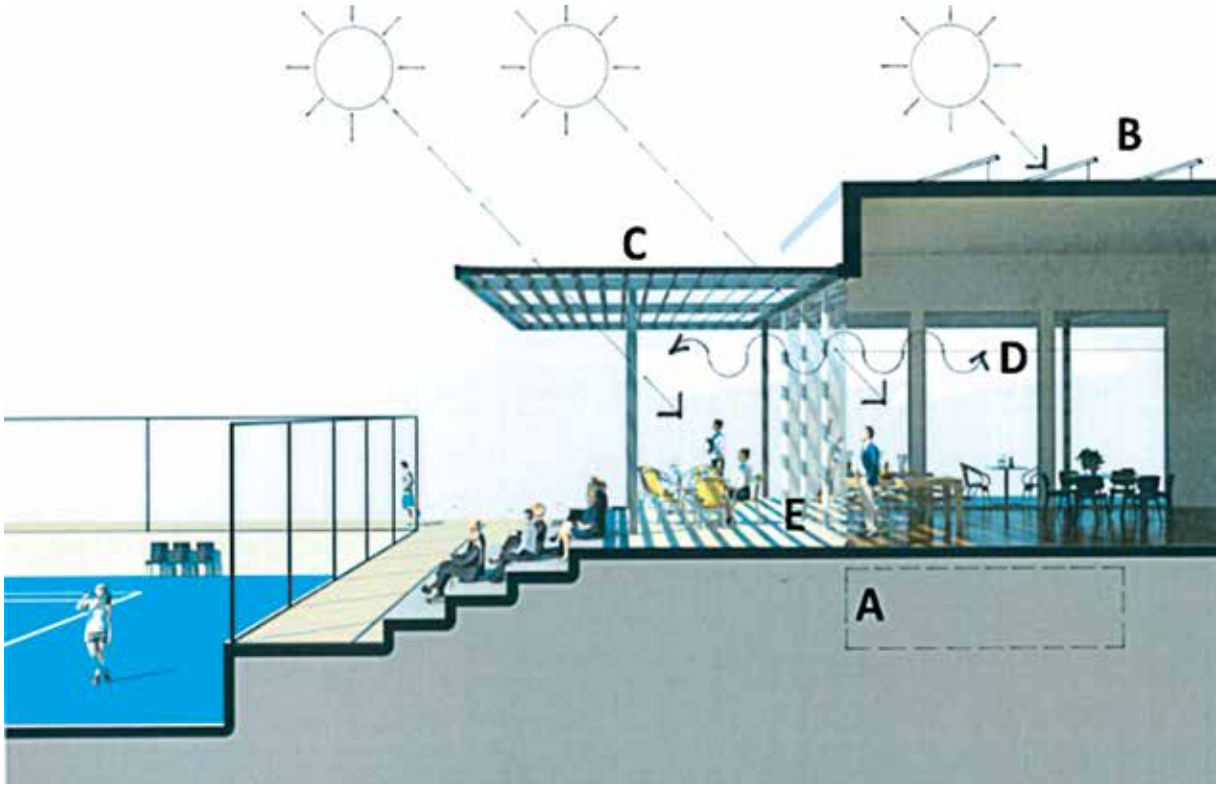


Table 3.4.1
ESD clubhouse design concept legend

Reference	ESD Features (Selected)
A	Stormwater Detention Tanks (as per local council requirements)
B	Solar Panel Arrays to the roof
C	Passive Solar Design principles such as: • building orientation and siting • wide verandahs to protect glazing (northern and western glazing in particular) and to reduce heat gain into the building
D	Openable windows (where practical) for cross flow ventilation
E	Sustainable building material selections for wall cladding, flooring, external paving materials etc.

3.3.2 KEY AMENITIES AND FUNCTIONAL RELATIONSHIPS

A functional and well serving clubhouse must consider a range of amenities. This section identifies how amenities can work best together and provides an area schedule of typical spaces relevant to tennis clubhouses of different sizes and purpose. Amenities include features and facilities that are practical or desirable within a building or venue. Many of these are dependent on the facility size (e.g. number of courts), existing or proposed management model, likely activity mix and available project budget. A selection of typical tennis clubhouse amenities are explained in this section.

1. Main / central entry point
2. Multipurpose clubhouse space
3. Sanitary facilities – provision of unisex accessible, ambulant accessible facilities. Consideration of baby change table in unisex accessible toilets adds flexibility of use
4. Kitchen / kiosk / café space
5. Tennis Pro-Shop
6. Tennis / tournament office space
7. Multi-purpose / function / meeting space
8. Verandah and spectator seating
9. Gymnasium
10. Commercial tenancy space
11. Secure storerooms and lockers

Elements to be considered when planning a new tennis clubhouse or renovating / redeveloping an existing facility are summarised below.

1. Main / central entry point

The main / central venue entry point should be a clearly identifiable control / access point with direct access for community, club members and visitors.

Figure 3.4.4
Accessible clubhouse entrance

Where possible, it should have direct access to the carpark, be safely trafficable and lit at night.

2. Multipurpose clubhouse space

The main clubhouse space should be designed as a warm inviting space for user comfort and to maximise viewing opportunities over as many courts as possible. This can promote spectator engagement and viewing in comfort, particularly during extreme or unpleasant weather (e.g. heat or wind). It can be achieved by creating an elevated building platform and providing large areas of protected glazing.

Main clubhouse spaces should be zoned to accommodate multiple concurrent uses such as spectator seating, player lounge area and social spaces, supporting

Figure 3.4.5
Multipurpose Clubhouse space

different levels of amenity for patrons whilst maintaining as much flexibility as possible. The size of the clubhouse will be determined by the number and demographic of users, along with the activity mix and type of events being delivered at the venue.

3. Sanitary facilities (male / female / accessible / change rooms)

Sanitary facilities should be accessible from both within the clubhouse and externally. Providing such access for players, spectators and coaches (particularly in event mode) reduces the need to access the clubroom area and enables the clubroom to be locked after hours if required.

The number and type of sanitary facilities provided is determined by the Building Code of Australia (BCA). Architects or Building Designers can provide the necessary guidance for the project size and budget in respect of these amenities. The suggested area schedule in **Section 3.4.3 Indicative clubhouse concept plans** provides guidance on the spatial needs of sanitary facilities in relation to building size, function and user numbers.

Figure 3.4.6
Accessible sanitary facilities

4. Kitchen / kiosk / café

The kitchen / kiosk / café space is often considered the hub of a tennis facility. In many smaller community level venues, it also provides a space for retail sales, administration and tournament control thereby minimising overall staffing and resourcing requirements.

This space should be accessible by patrons from both within the main clubroom and verandah or covered spectator viewing space via counter / serveries, minimising congestion to the clubroom during peak times. Bench and counter heights should consider users of all ages and abilities.

The size and level of amenity and type of appliances to be provided within the kitchen will depend upon the size and operating model of the venue and should be scoped based on individual venue needs.

5. Tennis pro-shop

Tennis pro-shops should ideally be positioned near the main entry point of the clubhouse to not only present the sale of sporting goods, but to enhance the general control and visibility over the venue.

This space is most commonly shared with the Kiosk or Café function of the centre and depending upon the selected management model the Pro-Shop could accommodate features such as:

- Space for a stringing machine
- Product display space for racquets, sporting equipment and accessories on walls, clothes racks and floor mounted display areas
- Glass fronted drink machines or ice cream fridges
- Consideration of point of sale bench heights and accessibility of products to cater for all users

Figure 3.4.7
Kiosk / cafe

Figure 3.4.8
Kiosk / cafe

Create universal counter height of 900mm where EFTPOS or point of sale is cordless

6. Tennis / tournament office

A multi-purpose space that can be used as an administration hub by venue managers, volunteers, coaches, tournament officials etc. should form part of the central control point of the facility and be located either within or adjacent to the kiosk / café or pro-shop.

The office should, where possible provide direct access from the servery to an outside undercover space / verandah to assist with event operations.

Recommended elements to include in a tennis office space include:

- One to two work stations
- Under bench storage for tennis balls
- Lockable drawers and cupboards for paperwork and electronic portable devices
- Bench space for office accessories such as photocopiers, printers and PA systems
- Variable window heights to accommodate users of all ages and abilities.

7. Multi-purpose / function / meeting space

To optimise facility patronage and flexibility, additional multi-purpose rooms should be considered. These spaces add value to the facility and provide an opportunity to hire the facility externally, maximising usage and providing an additional income stream for the club / venue.

Figure 3.1.10
Multi-purpose space

Figure 3.4.9
Administration hub / tournament office

8. Verandah areas and spectator seating

Maximising spectator seating and viewing from the clubhouse / verandah areas over the courts is a key factor to achieve a user friendly tennis facility. The ability to monitor the progress of play is easier if the courts are able to be viewed from an elevated position, and more comfortable if covered tiered seating is provided at the edge of the verandah (**Refer to Section 3.4.1 Clubhouse design key principles** for more information).

The spectator experience from within the clubhouse is also enhanced by maximising the areas of shaded glazing to the northern and western elevations of the building to reduce both glare and heat. This means that by increasing the areas of glazing that are shaded by some means, the heat load on the glass and subsequent glare will be significantly reduced.

The provision of shaded viewing areas / seating shelters for spectators in thoroughfares between courts should be offered to further enhance the spectator experience.

Figure 3.4.11
Wide Clubhouse verandah

Figure 3.4.12
Tiered spectator seating

9. Gymnasium

Depending on the management model and size of the facility, a gymnasium / fitness training area could be incorporated into the clubhouse design to add value to the venue's service offering. This may be provided with a separate entrance if managed by an external operator or accessed internally from the main clubhouse space.

A gymnasium area can also provide an alternate space for off-court activities at times of inclement weather or as a warm up / cool down space for players.

Commercial tenants can often include allied health agencies such as physiotherapy, podiatry and sports massage, as these services can support tennis activities and also benefit the wider community. Independent tenancy spaces should ideally have their own direct entrance to the venue, be able to be accessed directly off a carpark and have clear visual exposure to passing traffic.

10. Commercial tenancy spaces

Tennis facilities with zoned spaces and/or approval for commercial use may consider the integration of commercial tenancies as an added value proposition. Tenancies and activities that provide synergies with tennis activities (e.g. physiotherapy, personal training) or complementary offerings (e.g. healthy food or beverage service) are recommended.

Commercial leasing or other access arrangements should be negotiated to provide benefits for both the venue and the service provider. This will help to maximise any cross promotional benefits that may arise from both the tennis and added value service.

11. Secure Storerooms and Lockers

Where possible, the following types of storage should be integrated into the venue:

- Main internal clubhouse store room for furniture and general items (e.g. tables and chairs), ideally located near an external access point.
- Externally accessible storeroom to hold coach's training equipment and court maintenance appliances for direct access from the courts (e.g. ball machines, baskets, balls, nets, rollers (refer to **Section 3.5 Equipment and accessories**). This storeroom should include an automated security roller door where possible for compliance with safe work practices.
- Lockers for secure personal storage.

Single storey v double storey clubhouse design

When designing a clubhouse and exploring the viability of a single storey or double storey option, the following factors need to inform decision making:

- Will two levels practically support the current and future management structure and events to be held at the facility, or will an expanded single level footprint meet this demand?
- What local government planning constraints may impact a two storey development?
- Does the available land size better support a single or double storey clubhouse building?
- Are there budget constraints and how much additional income will be required to meet the added expenses of a double storey building?
- What sort of clubhouse building do the existing site conditions support? E.g. is the site sloping or flat?
- Can an existing clubhouse adequately support and accommodate a second storey
- What would the impact be on existing services through a renovation period?
- Will a double storey clubhouse provide a better patron / spectator experience than a single level?
- What are the NCC technical requirements for the height rise needed?
- What capacity lift do we need? i.e. single or double wheelchair capacity

A feasibility study should be undertaken when considering any double storey tennis clubhouse development or redevelopment to ascertain if this is the best option for all stakeholders.

Two storey clubhouse siting and design considerations

When contemplating a double storey tennis clubhouse, the recommended site planning factors outlined in **Section 3.4.1 Clubhouse design key principles** for a single level clubhouse apply. The most important factor to be addressed is the location of the clubhouse with respect to the court layout to ensure overshadowing onto the court(s) is minimised.

Accommodation Briefs will vary for clubhouses and be dependent upon size, proposed management model and nature of events to be held at the venue.

A double storey clubhouse design may include the following:

Ground Floor

- Main / central entry point
- Toilet and change room amenities (internal and external access)
- Storage (internal and external)
- Tennis Pro-Shop
- Café / kiosk
- Tournament office space
- Main clubroom space
- Multi-purpose spaces.

Second Floor

- Social, function or multi-purpose space(s)
- Spectator viewing provision (decking and balcony off the main function room, meeting room or multi-purpose space)
- Toilet amenities
- Storage to support second storey activities
- Kitchen to support second storey activities.

A key consideration for a double storey development is patron access, which will often require a lift to meet Building Code, Disability Discrimination and Universal Design requirements. Lifts can add significant costs to the overall project budget.

Modular or Prefabricated Clubhouse Design Options

Modular or prefabricated buildings are increasingly being investigated and adopted by sporting clubs and associations around the country as a potentially more economical alternative to designing and constructing in-situ (i.e. built in place) facilities.

With the advent and improvement of construction material technology a modular or prefabricated building can not only be a more cost effective solution, but can potentially offer an equally visually appealing clubhouse design to that constructed in a traditional manner.

General design considerations

A modular building design will need to comply with all national design and construction standards including the NCC (National Construction Code) and AS 1428.1 – Parts 1, 2, and 4 – Design for access and mobility requirements, where ramp access in particular is a fundamental consideration due commonly to floor systems being elevated above ground level.

Modular building systems can be designed with all typical amenity requirements for a tennis facility including an open clubroom space, sanitary facilities, kitchens / kiosk / canteen, offices, storage rooms etc.

Planning and construction considerations when using modular building systems

Planning Approvals

Like any building project a prefabricated or modular clubhouse building will need to follow due planning processes including requiring both a Development Application (DA) and Building Application (BA).

Universal Design (UD) principles and equitable access applies equally to modular buildings as they do for in-situ clubhouse development. The selection of construction materials for durability and desired building longevity should be a priority if selecting a modular clubhouse solution.

Construction Process

One of the key benefits of a modular building system is the speed of construction and therefore the ability to have an operating clubhouse and facilities in place much faster than with a traditional development.

Construction Cost

As each clubhouse project is different in respect of general site locations and differing site conditions (i.e. flat or sloping), access constraints, material selection etc., it is difficult to present a true and consistent cost comparison between a modular building system and a traditional design and construction outcome. Depending upon the type of building system selected there could possibly be cost benefits ranging from nominally 15% – 30%.

If investigating a modular building system it is recommended to:

- Research or seek professional advice on the number of building systems available that could be suitable for the site.
- Adopt realistic budget expectations noting that a modular system may not be as cost effective as initially envisaged.
- Agree on the proposed longevity and durability for the facility which in turn reflects upon the type of system selected (particularly concerning material selections).
- Confirm access requirements for the site and the ability for large cranes and / or trucks to position themselves close to the nominated site for the clubhouse.
- Ensure disability access considerations are integrated into the design stage.

Contact the State or Territory Member Association in the first instance when deciding how much space the venue will need for tennis activities.

Benefits and Limitations

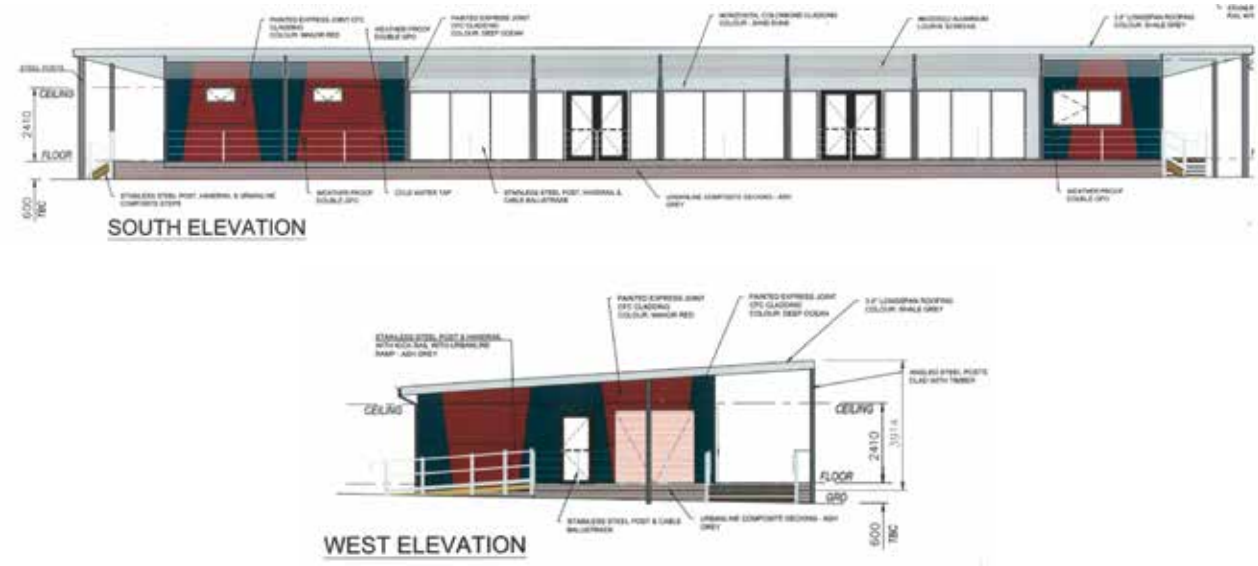
Benefits of modular design solutions may include:

- Increased flexibility of design and material selections.
- Relatively simple relocation opportunities (if the building ever needs moving).
- Potential cost savings versus a traditional clubhouse in-situ construction method (depending upon site location / conditions etc.).

A modular design solution may not:

- Offer the durability and longevity that a traditional building can offer.
- Suit the selected site and soil conditions due to the requirement for large vehicle / crane access and / or specially engineered footing systems.
- Satisfy Council Planning conditions / constraints.
- Offer the perceived cost savings envisaged.

Figure 3.4.14
Modular Clubhouse Design



3.4.3 INDICATIVE CLUBHOUSE CONCEPT PLANS

The following Accommodation (or Area) Schedule has been developed to guide stakeholder understanding of the size of spaces within clubhouses.

An Accommodation (or Area) Schedule can be used to:

- Test concepts and needs with venue stakeholders
- Compare the likely size of future areas with existing spaces
- Develop a Project or Design Brief with or to provide Architects or Building Designers
- Support the preparation of concept drawings.

The sizes for designated spaces are to be used as a guide only and individual venue's spatial requirements will need to be developed and refined with the preferred venue management model and activity mix in mind at all times.

The following also provides an indicative schedule of spaces for each of the three levels of clubhouse examples that would support flexible design to cater for a range of tennis activities and community uses.

Fixed minimum standards are not provided due to the vast range of sites and conditions applicable to tennis venues. Each clubhouse needs to reflect local needs, planning controls, expected usage and number of users.

Table 3.4.2
Accommodation (or Area) Schedule guidelines

The Accommodation (or area) schedule below should be used as a guide only when planning spaces. In all situations club use and functionality should drive all areas and spaces to be included in a clubhouse design or redesign.

The accommodation schedule is provided to assist with clubhouse layout planning, but is not prescriptive as each project scope varies, based on functional requirements and management model variants.

Functional area	Estimated floor area in m^2		
	Clubhouse A: 2 to 4 court venue	**Clubhouse B: 4 to 8 court venue**	**Clubhouse C: 8 to 12+ court venue**
Main / central entry point	n/a	$12m^2$ – $15m^2$	$15m^2$ – $25m^2$(+)
Main clubhouse / social space	$60m^2$	$120m^2$	$120m^2$ – $180m^2$(+)
Facilities (male, female, ambulant, accessible and change rooms)	$40m^2$	$50m^2$ – $55m^2$	$50m^2$ – $60m^2$(+)
Kitchen / kiosk / café space	$12m^2$	Integrated Spaces $25m^2$ – $50m^2$	Integrated Spaces $25m^2$ – $60m^2$(+)
Restringing area	n/a		
Tennis / tournament office / venue management space	n/a		
Multi-purpose / meeting space	n/a	Meeting Room $12m^2$ -$15m^2$	$120m^2$ (Divisible into 2 x $60m^2$ rooms)
Verandah and spectator seating	$60m^2$	$100m^2$ -$120m^2$	$180m^2$ – $200m^2$(+)
Gymnasium / off-court training space	n/a	n/a	$20m^2$ – $60m^2$
Commercial tenancy space	n/a	n/a	$50m^2$ -$150m^2$(+)
Main clubhouse store room	$8m^2$	$12m^2$ – $15m^2$	$15m^2$ – $25m^2$(+)
Equipment store room	$6m^2$	$8m^2$ – $12m^2$	$12m^2$ – $15m^2$

* **N/A** refers to areas that are not applicable or not necessarily required at this level of facility.

* **Square metre (m^2) sizes** have been calculated using the following concept design models and to scale clubhouse designs. They have been calculated based on estimated user numbers, application of relevant standards (e.g. DDA, BCA) and from review of a range of industry design projects.

Clubhouse concept floor plan examples

This section provides three concept plans for clubhouse layouts and design guidance based on different sized tennis venues. These layouts can assist with the development of a Project Brief for architects and / or building designers, also offering an indication of key amenities that can support a range of different activities within a tennis clubhouse environment. These examples can be used to plan new clubhouses or to identify opportunities in how existing clubhouses could be redeveloped to incorporate any or all of the identified features.

The tennis venues that are represented **Figures 3.4.16, 3.4.17 and 3.4.18** are defined in **Table 3.4.3 Clubhouse venue definitions.**

As each site is different and management models vary between tennis facilities, the following plans should be used as a guide only to assist Architects or Building Designers when preparing concept plans.

Table 3.4.3 Clubhouse venue definitions

Clubhouse Example	Venue definition (guide only)
Clubhouse A: 2 to 4 court venue	Suits many smaller community club level venues, mostly managed by volunteer committees and focused on club activities, recreational competition and social play
Clubhouse B: 4 to 6 court venue	A mix of venues are provided at this level, blending both smaller community clubs and those that provide a broader range of activities and events. The larger venues in this category may have professional venue management.
Clubhouse C: 8 to 12+ court venue	Venues at this level should provide a vast range of tennis and non-tennis activities and have professional operations in place. These venues are also more suited to more frequent event use and may require a greater diversity of amenity at the venue and within the clubhouse building.

The success of any concept design is determined by the quality of the planning and amenities provided to suit each specific site and the ability to enhance the player and spectator experience.

Figure 3.4.15
Concept Sketch Design example
('high level' spatial arrangements between Clubhouse areas).

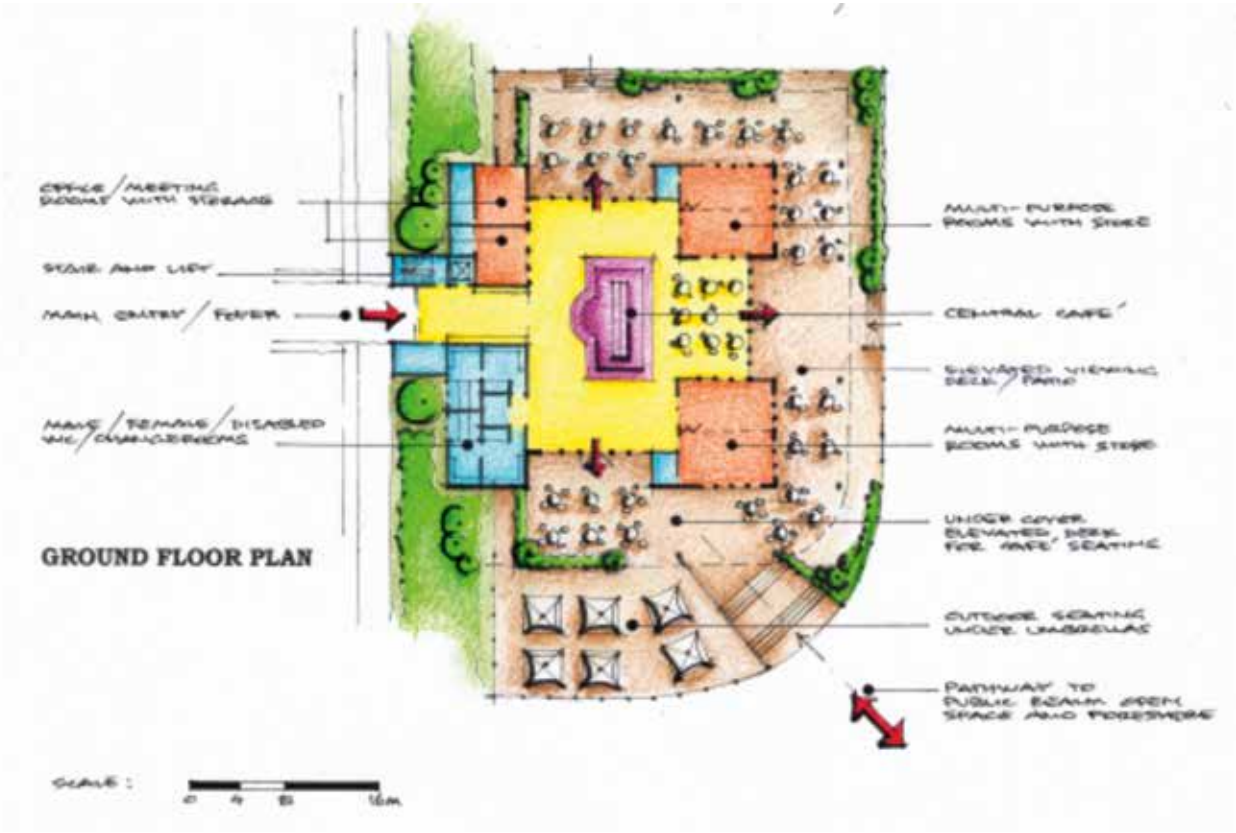
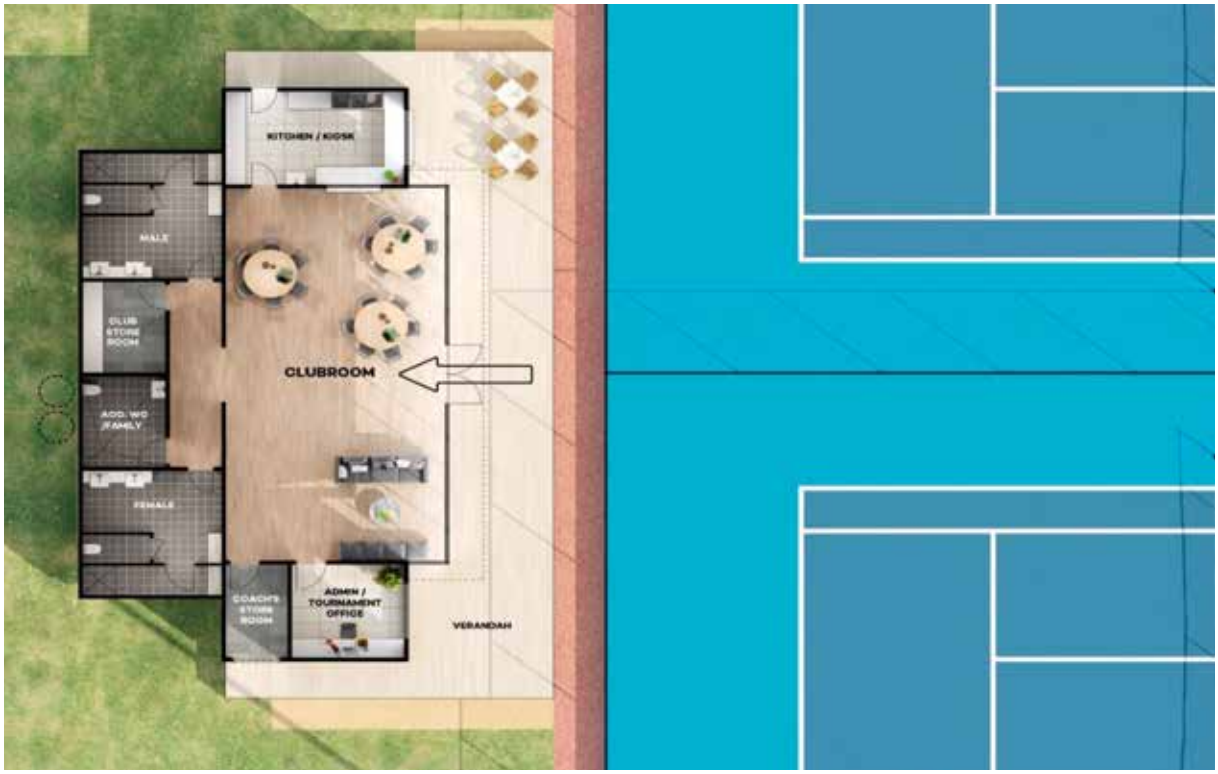


Figure 3.4.16
Clubhouse concept design (2 – 4 court)



Tennis Clubhouse A: 2-4 court facility

For a 2 – 4 court facility the minimum accommodation elements within the clubhouse environment are:

- Main Clubroom space (includes social / community area) and external verandah
- Kitchen / Kiosk with servery to the Main Clubroom space and verandah
- Tennis Office
- Storeroom (accessible from outside with security shutter)
- Male / Female / Accessible amenities (including toilets, shower and changing area).

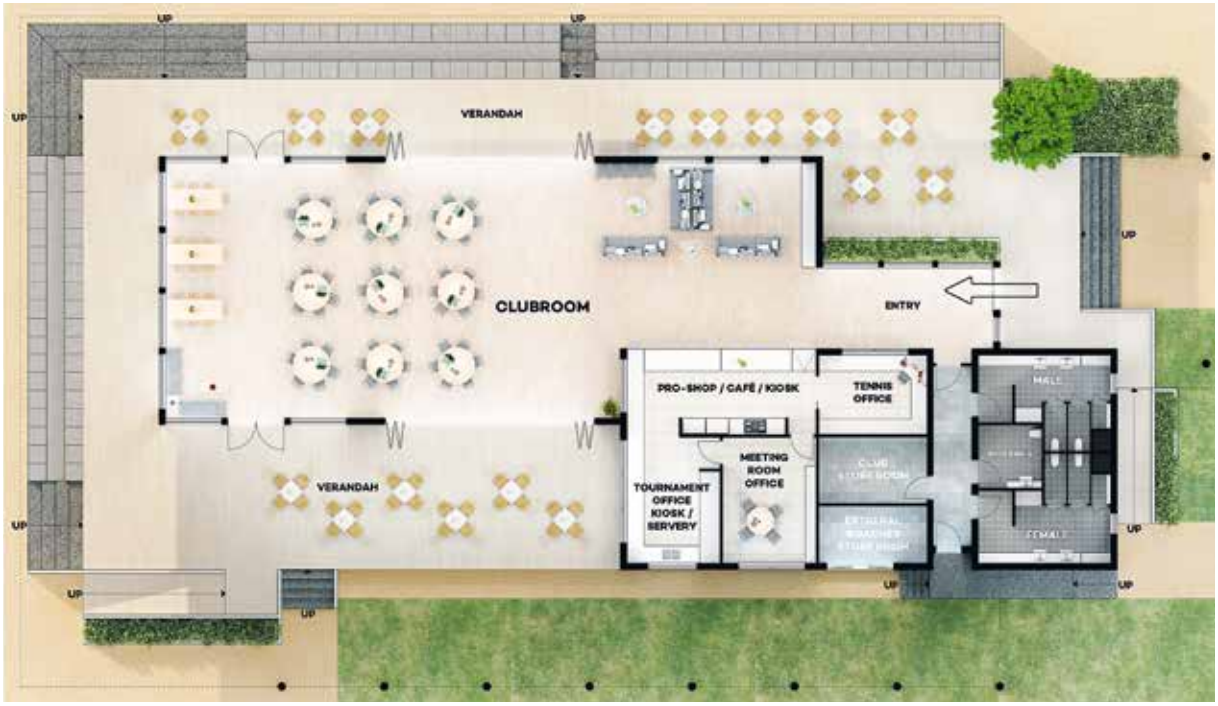
Where 4 courts are grouped together the orientation of the Main Clubroom space should face directly towards the courts (i.e. north / south) with full height glazing to maximise views to the courts.

The plan in **Figure 3.4.16** shows a simple lay out with the Main Clubroom sitting centrally and flanked by the Tennis Office and Store Room to one side, and the Kitchen / Kiosk to the other. Access to the toilets and change room areas is shown via the Main Clubroom space, however external access to the sanitary facilities could also be provided to one side of the storeroom if desired.

The plan reflects a flexible layout meeting the following Universal Design Principles:

- Easily identifiable entry point
- Clearly laid our amenities (e.g. male / female / accessible)
- Ample spectator / seating areas.

Figure 3.4.17
Clubhouse concept design (4 – 6 court)



Tennis Clubhouse B: 4-6 court facility

For a 4 – 6 court facility the following minimum accommodation elements are recommended:

- Main Clubroom space (includes social / community area) and external verandahs
- Kitchen / Kiosk / Café / Pro-Shop (with servery to the Main Clubroom space and verandahs)
- Tennis Office
- Tournament Office (shared with Kiosk / Café with servery to the verandah)
- Meeting Room
- Clubroom Storeroom
- Coaches Storeroom
- Male / Female / Accessible amenities (including toilets, shower and changing areas and accessible both internally / externally).

Creating efficient and functional relationships between the accommodation elements of a tennis facility are key to supporting the selected management model and delivering the best possible user experience for players and spectators.

The plan in **Figure 3.4.17** shows a simple layout for this sized venue. The clubhouse is accessed from the east (right of plan) with the design enabling viewing of courts from three sides of the Main Clubroom and from the wide verandahs. The elevated floor level provides the opportunity for tiered seating as shown to the verandah perimeter creating access requirements such as ramping, a critical design element.

Figure 3.4.18
Clubhouse concept design (6 – 12+ court)

The Main Clubroom is sized to provide both lounge seating and tables and chairs while the Kiosk / Café / Pro-Shop is centrally located adjacent the Tennis Office and functions as the control point for the facility. In event mode the Kiosk servery doubles as a Tournament Office control point reducing the reliance for additional staffing on such occasions.

The plan reflects a flexible layout meeting the following Universal Design Principles:

- Universal access
- Easily identifiable entry point
- Secondary controlled access point to storeroom and amenities area
- Clearly laid our amenities i.e. male / female / accessible
- Ample spectator / seating and viewing areas
- Easily identifiable and accessible Café / kiosk facilities.

Tennis Clubhouse C: 6–12+ court facility

For a 6 – 12+ court facility the following minimum accommodation elements are recommended:

- Main Clubroom space (includes social / community area) and external verandahs
- Kitchen / Kiosk / Café / Pro-Shop (with servery to the Main Clubroom space and verandahs)
- Tennis Office
- Tournament Office (shared with Kiosk / Café with servery to the verandah)
- Meeting Room
- Multi-Purpose Community Space (with operable dividing wall)
- Clubroom Storeroom
- Coaches Storeroom

- Male / Female / Accessible amenities (including toilets, shower and changing areas and accessible both internally / externally).

This clubhouse concept is an extension to the 4-6 court clubhouse concept. The key addition is a Community Multi-Purpose Space that can be accessed independently after hours and from within the entry foyer of the main building.

The Main Clubroom size and configuration is generally larger and spaces should be calculated by the Architect or Building Designer using the Accommodation (or Area) Schedule to ensure that the building's population and sanitary facility provision are in accordance with BCA Guidelines.

The design and operational flexibility provided by the inclusion of the Community Multi-Purpose Space maximises the opportunity for a club or association to attract 'value add' activities and uses throughout the year, not just during the tennis season. Additional amenities that could be introduced as part of the multi-purpose space include a Gymnasium, Commercial Tenancy space or similar activity. UD principles satisfied are similar to the 4-6 court facility and are enhanced in this option through the additional amenity offered by the Multi-Purpose Space.

Hitting Walls

Hitting Walls are a feature that can be added to an existing site or integrated as part of a new tennis complex as a value add amenity. They provide an opportunity for both coaches and players to use either formally as a coaching tool, warm up area or generally as a fun way to enjoy the sport without the need to access a full sized court or a partner to play with.

Where land area permits a hitting wall can:

- Form part of (or be an extension to) the existing tennis court fencing or site boundary fencing.
- Be a stand-alone feature on the site (within view of the clubhouse for supervision purposes).
- Integrate as part of the clubhouse structure (albeit away from the main clubroom space for acoustic separation).

Hitting wall types

There are a variety of hitting wall types comprising different materials and construction systems. Depending on the type of wall the detail design and certification should be undertaken by a qualified structural engineer due to the required height above ground level. Typical Hitting Wall construction systems can include:

1. Concrete masonry / concrete core filled with a flush rendered and / or painted finish.
2. Reinforced concrete or concrete precast panel with a flush rendered and / or painted finish.
3. Composite steel frame / insulated panel clad in either lightweight CFC (Compressed Fibre Cement Sheet), plywood or similar panel material) and painted finish.

Type 1 or 2 above are the preferred options primarily due to general durability, longevity and overall performance. Stand-alone lightweight walls tend not to provide the required performance as they absorb the impact of a ball rather than rebound the ball. They can also prove to be very loud acoustically.