



DELHI 2010 COMMONWEALTH GAMES

COMMONWEALTH GAMES VILLAGE

VENUE BRIEF



Organising Committee Commonwealth Games 2010 Delhi

22 November 2006

Venue Brief – Commonwealth Games Village

The Venue Brief accompanying this letter has been developed by Event Knowledge Services on behalf of the Organising Committee for the Delhi 2010 Commonwealth Games in consultation with the Commonwealth Games Federation, the Delhi Development Authority (DDA), and other relevant parties.

The Venue Brief provides a comprehensive overview of the Commonwealth Games requirements as they relate to specified competition venues and will provide venue designers, and ultimately developers, with a sound basis for future work.

An extensive consultative process has been undertaken in developing the Venue Briefs with opportunities for all parties to have input to a series of drafts. This Venue Brief now constitutes the final version and is issued for implementation by the Delhi Development Authority (DDA).

This Venue Brief is a benchmark document which describes the performance requirements of the Delhi 2010 Commonwealth Games as they are currently understood by the Organising Committee. The issue of this document forms part of the ongoing iterative process which will span the next four years between the Organising Committee and the Delhi Development Authority (DDA) to deliver Venue/s for the 2010 Commonwealth Games.

The Organising Committee confirms its complete support to the Delhi Development Authority (DDA) in this endeavour.

(SURESH KALMADI)
Chairman, Organising Committee
Commonwealth Games 2010 Delhi

DELHI 2010 COMMONWEALTH GAMES

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SECTION 1

1 PROJECT INTRODUCTION

1.1 PREFACE

This Venue Brief (Brief) for the Commonwealth Games Village in Delhi was prepared by Event Knowledge Services Pty Ltd (EKS) for and on behalf of the Organising Committee for the 2010 Commonwealth Games (Organising Committee).

The Brief describes the performance requirements and outcomes needed to deliver a high quality Village for the Commonwealth Games. The design and technical solutions, to be prepared by the Design Consultants appointed by the Agency, shall meet the requirements set out in this Brief in an efficient and economic manner.

EKS has used every care and diligence in preparing this document, based on the information provided by the Organising Committee, the Agencies and its nominated stakeholders, but disclaims any responsibility for the accuracy of the information provided.

1.2 THE BRIEF

1.2.1 Purpose of the Brief

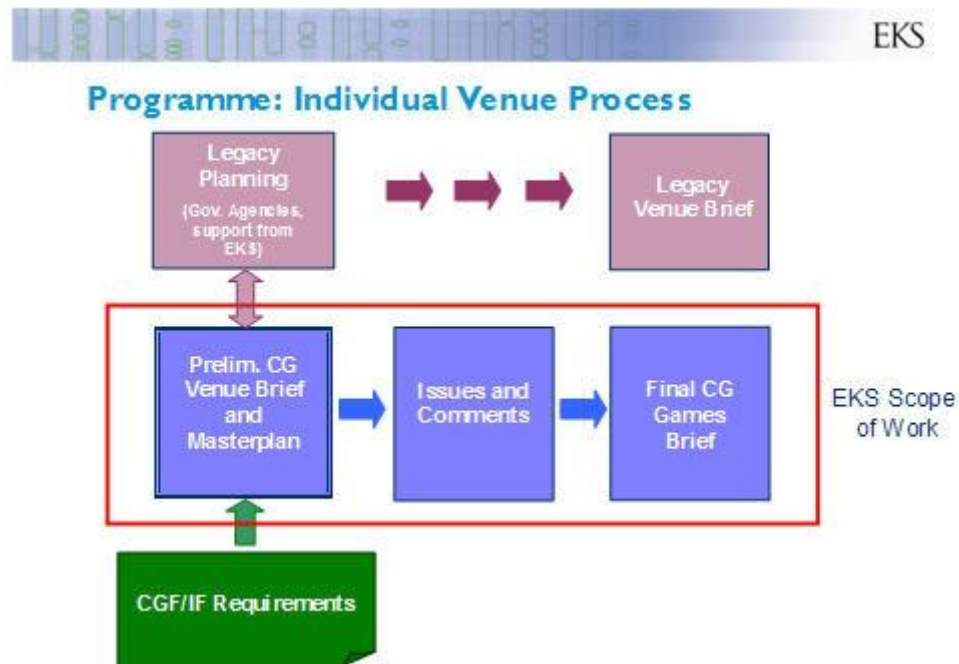
This brief describes the technical requirements associated with development of the Games Village. These include the current requirements of the Commonwealth Games Federation (CGF) and the Delhi 2010 Organising Committee (OC).

It should be noted that this document is a "benchmark document" that describes the outcomes required and the performance standards. The Design Consultants, to be appointed by the Agency, are required to prepare a Facility Brief that will fully develop and expand this document and, where appropriate and by agreement, periodically update the Facility Brief as the design evolves. In particular, legacy recommendations need to be defined and expanded by the Agency.

It is intended that, where possible, the specific requirements for Games operations, as outlined in this Brief, are to be accommodated within the permanent legacy works. The extent to which the solutions to these requirements are delivered by permanent works or by temporary fitout is an ongoing process between the Agencies and the Organising Committee. In addition, the Brief does not specify who will deliver the solutions, which shall be separately agreed.

The Brief covers the requirements to the level of detail that is currently known by the Organising Committee. The development of the Brief and the associated design and operational solutions, forms part of an ongoing planning process that spans the next four years, leading up to the Commonwealth Games. This process shall allow for the Organising Committee to progressively change, update and detail their requirements as their planning develops. The final Brief will reflect these changing requirements and a degree of flexibility needs to exist with all solutions provided by the Government Agencies.

The post Games utilisation of the Games Village is referred to as the legacy use. The legacy requirements will be determined and briefed by the Agency. The Agency needs to combine the two sets of requirements to give instructions to the Design Consultants. The relationship is shown in the diagram below.



1.2.2 Layout of the Brief

This brief is divided into six sections plus Appendices.

- **Section 1 – Project Introduction**
This section gives a general description of the brief, the venue and the uses.
- **Section 2 – Design Requirements**
This section describes the overall design requirements that apply to the whole venue.
- **Section 3 – Venue Functional Requirements**
This section describes the specific requirements of each constituent group and their spaces.
- **Section 4 – Concept Planning**
This section describes the outcome of a concept planning exercise from which a benchmark proposal was produced which describes how the planning principles could be achieved.
- **Section 5 – Building Services**
This section describes the requirements for structural, civil, electrical, lighting, lightning, IT, security systems, mechanical, hydraulic and fire services.
- **Section 6 – Furniture Fixtures and Equipment**
This section gives a broad description of the FF&E requirements.
- **Appendices**
This includes supporting information including the schedules and drawings.

1.2.3 Agency Deliverables

1.2.3.1 Process

Prior to acceptance of the final design, compliance with the Venue Brief for each mode of operation will need to be demonstrated by the Agency. All the functional requirements and design standards shall be addressed as part of this process.

The process to achieve this shall be agreed between the Organising Committee and the Agency but, at a minimum, the designs and relevant supporting documentation are to be submitted to the Organising Committee for review and comment at the following stages of the process:

- Concept Design;
- Design Development;
- Tender Documentation;
- Full Documentation; and
- As-Built Documentation.

1.2.3.2 The Deliverables

The design, construction and operation of the Games Village shall meet the requirements of the Commonwealth Games in an efficient and effective manner, by either permanent or temporary facilities. The extent of temporary facilities will depend on the permanent design and the ability to meet Games requirements.

The Agency shall provide the following deliverables as a minimum to the Organising Committee for their review and comment:

- A Facility Brief that fully describes the permanent facilities and details how the Commonwealth Games requirements, as detailed in this Venue Brief, are to be accommodated.
- Documentation at each stage of the design process to the appropriate level of detail for each mode. This documentation would generally be limited to site, master and general arrangement plans, sections, elevations and specifications. The Organising Committee however reserves the right to request full documentation at certain stages of the process but at a minimum this would be at the Full Documentation and As-built stages of the process.
- Drawings describing the Commonwealth Games Village in Games mode, to a sufficient level of detail to allow the Organising Committee to assure themselves that the Games Village can economically and efficiently stage the Commonwealth Games. This shall include site master plans, individual building floor plans (where appropriate) and building sections drawn in accordance with OC CAD standards/colour coding.
- Schedules of all proposed permanent spaces giving details, including:
 - Location;
 - Size;
 - Utilities, including power, lighting, and air-conditioning;
 - Finishes;
 - Furniture, Fixtures and Equipment (FF&E); and
 - Proposed Games mode use.
- Where temporary works are to be delivered by the Agency the following shall be provided:
 - Location size and services provided;

- Proposed standard of work, e.g. fitout of existing space, marquee, cabin, temporary stands; and
 - Timing of installation and removal/making good.
- Detailed proposals of how all the technical and building services requirements are to be incorporated into the venue including but not limited to detailed proposals of:
 - Those systems that will be provided permanently and what is proposed to be temporary;
 - How permanent systems can be augmented to meet the Games requirements where they do not meet the Games requirements;
 - The location of all permanent technical and building services plant rooms and spaces and those proposed to be temporary; and
 - Location and details of all permanent technology and services pathways, risers and ducts and those proposed to be temporary.
- All studies in relation to the Games Village including but not necessarily limited to:
 - Surveys
 - Contamination Reports
 - Geotechnical Studies
 - Traffic Studies
 - Acoustic Reports
 - Fire Engineering Studies

These documents to be submitted to the Organising Committee in the following formats at a minimum:

- Hard copy, minimum 2 sets A1 and A3 size drawings;
- Hard Copy of reports, schedules, specifications, etc.;
- Hard Copy of reports, schedules, specifications etc.;
- Electronic copies of all documents in pdf format;
- Electronic copies of all drawings in 'dwg' AutoCAD format; and
- Electronic copies of all reports, schedules, specifications, etc. in 'Word' format.

1.3 VENUE DESCRIPTION/FUNCTION

1.3.1 General

The Commonwealth Games Village will accommodate up to 8,000 Athletes and Officials during the 2010 Commonwealth Games. All facilities required in the Games Village are outlined in Section 3 - Games Village Functional Requirements.

The site has no existing structures. The site is generally level, though access roads to the west of the site are at a higher level due to the bund separating the site from the Yamuna River floodplain. In some areas of the site there is mature landscaping.

The adjacent Akshardam Temple complex adjoins the site at the east and south sides and has existing security walls and fences.

1.3.2 Site Description

The site is located adjacent to the Akshardham Temple Complex accessible from the Noida Link Road to the east and NH 24 to the south.

The site has a number of constraints with respect to zoning, setbacks, land ownership issues, temple interface issues and transport/access issues. These constraints are broadly identified through the Site Constraints Drawing in the Appendices. It should be noted that these constraints are subject to confirmation with the Agency as there is an ongoing evolution with respect to resolving many of these specific issues to improve the planning opportunities for both Games and Legacy modes. Specific site issues which will need to be considered include:

- Level differences between key access roads and the site, which will require significant ramping for vehicle access.
- Resolution of proposed flyovers/upgrading of key intersections to facilitate vehicle movements at the site perimeter.
- Sound attenuation issues with respect to the adjacent railway and perimeter access roads, to mitigate noise disturbance within the Residential Zone.
- Interface with the Akshardham Temple, particularly with respect to access, security and Games Village operations.

It is recommended that any facilities that are not required by the Commonwealth Games should be closed for the Games period, or their operation managed in a manner that does not affect the Games.

1.3.3 Commonwealth Games

For the Commonwealth Games, the Commonwealth Games Village will be the home for all Athletes and Team Officials attending the Games. In summary, the Commonwealth Games Village will be developed in three separate zones, summarised as follows:

The Residential Zone

A Residential Zone, including, but not limited to:

- Residential Units;
- CGA Facilities (Offices, Medical, etc.);
- Resident Centres;
- CGA Services Centre;
- Sport Information Centre;
- Chef de Mission Auditorium;
- Main Dining Hall;
- Casual Dining Hall;
- Polyclinic;
- Recreational Facilities;
- Fitness Centre; and
- Religious Centre.

The International Zone

An International Zone, including, but not limited to:

- Main Entry;

- Guest Pass Centre;
- Village Media Centre;
- Commercial Centre;
- Entertainment Facilities; and
- Welcome Ceremony Plaza.

The Operational Zone

A BOH Operational Zone, including, but not limited to:

- Village Accreditation Centre;
- Village Motor Pool;
- Village Operations Centre;
- Security Command Centre;
- Logistics and Technology Centre;
- Staff Centre;
- Housekeeping;
- Athlete Transport Mall; and
- External Parking and Operational Areas.

Section 3 - Games Village Functional Planning Requirements outlines the specific requirements for these facilities.

1.4 THE OBJECTIVES

The primary purpose of the development of the Commonwealth Games Village is to:

- Provide a world class Games Village for the 2010 Commonwealth Games , to be held in Delhi in October 2010, that allows and assists the OC to deliver the best ever Commonwealth Games; and
- Leave a legacy that provides a first class residential precinct for the citizens of Delhi.

The primary objective is the overall basis for judging whether the Games Village is 'fit for purpose' and should be referred to where there is conflict or uncertainty about what is to be provided. Where there is any uncertainty on what is required, reference should be made to the primary purpose and facilities should be provided to suit that purpose.

For the legacy, it is recommended that supporting project objectives be:

- To provide an international standard precinct for residential, recreational and commercial activities;
- To create an architectural expression appropriate to a world class residential, recreational and commercial precinct;
- To develop a design capable of flexible operation;
- To achieve a design that minimises maintenance and operational costs;
- To facilitate access and use by people with a disability;

- To comply with the requirements of the relevant Delhi and Indian Authorities and Standards; and
- To minimise the impact of the precinct on the environment.

1.5 THE MODES

The Agency, respecting the operational timelines of the Organising Committee, shall define the proposed programme for the delivery of the Games Village, including the delivery of all temporary Overlay works unless otherwise agreed with the Organising Committee, and the proposed date for handover of the Games Village to the Organising Committee. In addition, all exclusive access periods required for the bump-in and bump-out periods shall be clearly defined and agreed by all parties. The Games Village will operate in three modes:

1. Pre-Games

The Agency should discuss the proposals for the Pre-Games use with the Organising Committee to ensure that the scope and timing does not adversely impact on the transition to Games Time operations. The fitout and bump in period for the Games Village will be extensive, and will require no less than 4 months to complete for all areas of the Village. It is anticipated that for this 4 month period or such longer period as may be agreed, the Organising Committee will require exclusive access to all areas of the Games Village in order to implement the fit-out, assuming Overlay construction has been completed. All arrangements regarding the exclusive access period should be agreed between the Agency, the Organising Committee and Commonwealth Games Federation.

2. Games

This mode of operation includes the incorporation of those elements identified in the Facility Brief which are different to the Post Games utilisation. These changes may be of a temporary nature and be removed following the event. The Design Consultants must clearly show how the precinct and venue is to be configured in this mode to meet these requirements and shall prepare documentation to support this. It should be noted that over the next four years the Organising Committee will undertake a detailed operational planning cycle which will further define these requirements and that this could change the way these requirements are interpreted and implemented. This is known as the Games Overlay.

Games Overlay is the event-specific temporary installations required for the Commonwealth Games. It may be added to permanent or temporary facilities, or it may stand-alone. It includes temporary products (tents, platforms, ramps, signage, Look of the Games treatment etc.) and services (electrical, mechanical, waste water, ventilation and air-conditioning).

3. Post-Games/Legacy

The requirements for this mode are to be briefed by the Agency. These works also include bump-out of the fit-out and any reconfiguration and repair works required following the removal of all Games Overlay. It is anticipated that approximately 2 months will be required for the bump-out and removal of the Games Overlay, based on previous experience.

SECTION 2

2 DESIGN REQUIREMENTS

2.1 GENERAL

The Games Village shall set high standards of design and construction, based on best international practice. The Village shall meet these standards for the Commonwealth Games at least. However, it is recommended that these standards be included in the permanent design and construction to ensure that the Games leave Delhi with a legacy of a high quality residential precinct.

The venue design shall:

- Meet the requirements of this Brief and all accompanying documents;
- Meet the requirements of the Commonwealth Games; and
- Be of a consistently high standard, including its functionality, services, finishes and fitout.

2.2 IMAGE AND EXPERIENCE

2.2.1 Image

The precinct shall be designed to reflect its status as a key facility for the Commonwealth Games which will represent Delhi to a large portion of the world. It should be a cohesive design with a distinctive image and identity in keeping with its status.

We would expect new buildings to have suitable massing in relation to the location, surrounding buildings and views to and from other areas and buildings, and incorporate a suitable choice of materials, including texture and colour, appropriate to the site and use.

All temporary structures in FOH areas shall be of the highest quality in order to maintain an appropriate image for the precinct.

2.2.2 Look of the Games

The Commonwealth Games will require significant dressing of the Commonwealth Games Village to create an event look and feel. This is known as the Look of the Games. This will include, but not be limited to:

- Flags;
- Banners;
- Signage and Wayfinding;
- Special Structures;
- Fence fabric; and
- Games and Sponsor signage.

Look of the Games shall be implemented in all areas of the Games Village, particularly where temporary structures and installations may be visible to Residents and Guests.

The Look of the Games shall be provided, including all, poles, rigging, fixings and other support structures necessary for installation and operation.

2.2.3 Experience

The design of the Games Village shall provide facilities that not only function well for all users but also promote an enjoyable experience.

Enjoyment by the all users can be increased by the following:

- The convenience, clarity and quality of the approach and entry to create or heighten a sense of excitement;
- The development of 'Gateways' at all major entries into the Games Village
- The establishment of 'vistas' through to the dome of the Akshardham Temple Complex at strategic locations throughout the Games Village;
- The sense of being part of a cohesive integrated community for the duration of the Games; and
- The convenience and clarity of circulation to, and quality of, accommodation, recreation, dining and support services.

2.3 TRAFFIC MANAGEMENT PLAN

A Traffic Management Plan shall be produced for the Games Village. The Design Consultants shall liaise with the Organising Committee to ensure that the precinct plan fits in with the overall Games planning. The Games Village planning shall fit in with the requirements of this plan.

The principles shall include, but not necessarily be limited to:

- Access within the site for the safe conduct of athletes and officials to the different zones;
- Athlete arrivals and departures, with specific reference to key operational periods such as initial Arrivals and Departures, Opening and Closing Ceremonies;
- Accredited access to the precinct
- Guest access to the precinct.
- Access to and from public transport for Games Workforce and non-accredited visitors;
- Secure access of accredited personnel to and into the precinct, both vehicle and pedestrian;
- Access and loading for services and deliveries, out of hours; and
- Control at precinct approach and entry.

2.4 ACCESS AND CIRCULATION

The planning principles for access and circulation shall apply to all users. They are as follows:

- The separation of different accredited groups;
- The safe separation of pedestrians and vehicles in all areas; and

An effective and efficient access and circulation system shall be provided for all users. This shall provide:

- Good access to the Games Village from the external road network to suit the types of vehicles and separation of groups;
- Good access to the venue from the public transport system for Workforce;
- Sufficient areas within the Games Village for efficient and comfortable movement, between areas and for entry and exit;
- Simple but adequate separation between accredited users, that prevents access to accredited zones with minimal staffing;

- An egress system shall be provided that allows all constituent groups to leave the Games Village by smooth, unimpeded exit routes;
- An egress system shall be provided that, in emergencies, allows all constituent groups to leave the Games Village by smooth, unimpeded exit routes to well lit and clearly indicated assembly points in safe areas outside the Games Village;
- All access and circulation areas shall be free from hazards, adequately drained where necessary, and slip resistant to suit international standards; and
- Adequate slip resistance, appropriate for the specific areas, complying with the standards in both wet and dry conditions and take into account the recommended cleaning method.

Access control shall be provided between different accredited zones. Where permanent structures, such as walls, are not available, temporary barriers shall be used. Barriers, includes barricades, post and rope, planters, screens or other similar devices suitable for the circumstances.

2.5 COMMERCIAL

For the Commonwealth Games, all commercial facilities shall be either, removed, vacated or made available for Games use without encumbrance. Where this is not possible, this shall be identified and agreed with the Organising Committee prior to contracts being signed. In particular, this shall apply to ongoing operations, advertising and sponsorship to avoid conflict with Games time commitments.

2.6 SIGNAGE AND WAYFINDING

A comprehensive, visible, readable, flexible and effective signage system shall be provided for the Commonwealth Games, both outside and inside the Commonwealth Games Village. This shall match the standards set for all Games venues.

Signs shall be prominent and legible to all users. The design of the precinct shall provide for suitable signage including wayfinding, zone and location, special purpose and internal signage.

2.7 ADVERTISING

The Design Consultants are to ensure that any advertising complies with the following:

- Meets local code requirements;
- Conveys, advertises messages and images while complimenting and conforming to both the development on which it is displayed and the character of the surrounding locality;
- Does not adversely affect the area in which it is located in terms of appearance, size, illumination, over-shadowing or in any other way;
- External facades and structures should be designed to accommodate such signage;
- Include all power, data and communications connections; and
- Does not lead to visual clutter through the proliferation of signs.

2.8 LANDSCAPING AND EXTERNAL WORKS

The site will require extensive landscaping around the perimeter and internally around the facilities. Delhi has a policy of protecting existing trees and planting new ones. Therefore, any existing trees and mature landscaping should be surveyed and protected as much as possible. This will also have the advantage of providing a mature landscape for the Commonwealth Games.

A Landscaping Plan for the entire precinct shall incorporate soft and hard landscaping, including paving, lighting, signage, and external furniture. The planning shall attempt to provide the best

appearance for the site in October 2010. This shall include the choice of plants and the maturity of the planting.

External works, including roads, paths, hard standing and landscaping, shall be consistent across the whole complex to help unify the site. Significant landscaping should be included to help define the site and provide shade and shelter. Landscaping to car parking areas will improve the overall appearance of the site and provide shade. Shade will also be very important for athletes and visitors in external areas.

Soft landscaping should have regard to native vegetation and water conservation.

2.9 ENVIRONMENT

The precinct shall comply with the local Environmental Planning Codes and statutes. However, the health and safety of the athletes and visitors is critical and a high quality environment shall be provided that is not only safe but also assists athletes to achieve good performances. Therefore, it is recommended that international standards be applied.

In both its design and operations, the overall precinct shall integrate principles for Environmentally Sustainable Design (ESD), including those for passive climate design and water management. The project shall maximise the use of environmentally responsible materials and processes, and minimise energy and water consumption and adverse effects on the environment in both construction and operation.

In particular, the design shall minimise adverse effects of:

- **Wind**

The design shall minimise adverse wind effects in and around the precinct and buildings;

- **Noise**

The design shall minimise adverse effects from external noise, such as traffic or adjacent buildings, especially the residential zone and other areas where it may affect the quite enjoyment of the precinct. Based on the Concept Master Plan, this will likely result in some sound attenuation structures along the main access road to the Athlete Transport Mall, as well as along the Railway corridor. The designers shall demonstrate the means of achieving acceptable levels of noise along these key elements.

- **Sun and Rain**

The design shall maximise the shelter from sun and rain for all users of the site, especially at entries and to and from the key facilities on the site.

2.10 EQUITABLE ACCESS

The Games Village shall provide an equitable environment for attendance and participation in the Commonwealth Games by all people, including those with a disability.

It should be noted that there will be EAD Athletes resident in the Games Village. As such the Village shall be fully accessible in all areas where EAD athletes have access. With respect to Residential units, an agreed number of units, distributed across the Village, shall be fully accessible for EAD Athletes.

All facilities and provisions must meet local codes for accessibility and shall meet international best practice for accessibility, where this is higher than local codes.

Equitable access shall apply to all facilities, unless specific approval is given. Particular care shall be given to the following:

- Access and circulation through public spaces;

- Access to all common facilities throughout the Village, in particular facilities within the Residential and International zone; and
- Residential Units (based on an agreed distribution).

2.11 SAFETY

Safety of all people in the precinct is of paramount importance and all aspects of design, detailing and selection of materials shall have due regard to this requirement, including but not limited to:

- Handrails and balustrades;
- Surface finishes to floors and paving;
- Egress paths;
- Lighting; and
- Paths of travel to transport nodes.

2.12 DESIGN AND CONSTRUCTION STANDARDS

2.12.1 Building Regulations

The relevant Indian building codes and regulations shall apply to all of the proposed development works, permanent and temporary. The Design Consultants shall determine the applicable codes and regulations and identify any differences to international best practice that would adversely affect the Overlay being delivered.

2.12.2 Standards and Codes of Practice

All components, elements, structures and installations shall be designed and constructed in accordance with relevant Indian Standards and Codes of Practice, and to international best architectural, engineering and building practice, to have the strength and durability such that, if maintained as proposed during design and construction, they are fit for purpose.

2.12.3 Best Value Options

All components, elements, structures and installations shall be chosen based on best value solutions based on the following criteria (not necessarily in order of importance):

- Capital cost;
- Ease of maintenance;
- Maintenance cost;
- Ease of cleaning;
- Operating / cleaning cost;
- Value for money;
- Ease of use;
- Appearance;
- Expected life;
- Resistance to damage;
- Ease of repair;

- Ease of replacement;
- Availability of spares; and
- Compatibility with environmental criteria.

2.12.4 Quality of Finishes

The type and quality of finishes should match the purpose of use of the room / space and be fit for purpose to international best standard for each application.

2.12.5 Flexibility

The design and construction shall allow a high degree of flexibility to accommodate changes to the Games requirements as the Organising Committee policies and procedures are developed.

2.12.6 Coordination and Concealment of Services

A management system shall be provided for all services to ensure that they are reticulated in a coordinated manner. All service reticulation shall be rationalised where possible to minimise penetrations and improve manageability.

All services shall be concealed where possible, whilst maintaining all necessary access, to reduce visual clutter. Where services are exposed, they shall be run in a manner that minimises their visibility, especially in Front of House areas.

2.12.7 Acoustics

All buildings, and in particular Residential Units, shall be designed to high acoustic specifications, to meet international standards. The acoustics shall assist the efficient operation of the Games Village. This shall include, but not be limited to, the following:

- Minimising external noise, including traffic and rain;
- Minimising sound transfer between adjacent rooms. The degree of acoustic separation shall be appropriate for the use of the rooms;
- Minimising sound borne noise through structure and services;
- Achieving good speech intelligibility, especially for Press Conference and any meeting or briefing areas; and
- Achieving good acoustics through choice of finishes.

2.13 AUTHORITY REQUIREMENTS

The design and construction of the Games Village shall meet the requirements of all local and national Indian standards and codes. All necessary approvals, licenses and the like shall be obtained from the relevant Authorities.

All relevant occupation certificates shall be obtained once the works have been carried out prior to handover and occupation to the OC for its exclusive use.

This entire process will be undertaken for each mode of operation and phase of the project.

2.14 EMERGENCY SERVICES

Design and construction of the precinct shall accommodate the requirements of the emergency services, including ready access for vehicles and personnel and a ready means of exit to a public road. This shall include at least:

- Fire;
- Ambulance;
- Police; and
- Security Services.

Provision shall include easy access into and around the precinct and the venues.

2.15 ENERGY EFFICIENCY

In order to provide a high quality facility for the legacy, we recommend that the precinct should be designed and constructed to maximise energy efficiency. We recommend that the design should incorporate passive design principles (such as natural ventilation, natural light and insulation, and energy efficient appliances and light fittings) and maximise use of renewable energy sources, as appropriate, particularly within the permanent facilities of the Residential Zone.

2.16 MAINTENANCE

For the Commonwealth Games, the Games Village shall have a full maintenance check prior to the Games to ensure that everything is in good working order and to minimise the risk of failure, especially for utilities.

In order to ensure this, and provide a high quality facility for the legacy, we recommend that the design and construction of the precinct should ensure that maintenance costs can be optimised and provide reasonable access for inspection, cleaning, maintenance repair and replacement of all elements of the facilities.

The choice of components and materials should take into account the likely availability of replacements and repair expertise, and suitable storage shall be provided for spares. These shall be available for the period of the Commonwealth Games that shall be not less than 6 months.

SECTION 3

3 VILLAGE FUNCTIONAL REQUIREMENTS

The Games Village shall be developed into three distinct zones. These are:

- Residential Zone
- International Zone
- Operational Zone

The following section identifies the functional planning requirements within each zone. In addition, the Concept Master Plan (Options 1 and 2) contained in the Appendices, identify a potential Games Village master plan configuration based on the brief requirements, following discussions with the Agency. The detailed spatial requirements are outlined in the Space Schedule contained in the Appendices.

3.1 INTERNATIONAL ZONE

3.1.1 General Description

The International Zone is the 'gathering' place within the Commonwealth Games Village. It shall accommodate commercial and recreational services for visitors and residents of the Village. The commercial area is required for residents to purchase essential items without leaving the Village. Facilities for CGA Welcome Ceremonies and Media interviews shall be provided in the International Zone.

The International Zone can be either permanent or temporary construction. If elements of the International Zone are provided as temporary construction, they shall be of a high standard. If provided as permanent construction it must be ensured that the 'legacy' components are designed in such a way so as to comply fully with the space and operational requirements outlined in the Design Brief.

The image and 'Look' of the International Zone must be carefully considered, and the appropriate treatment of all spaces and structures is required to enhance the visual experience of this area. If there is extensive use of temporary structures, this is particularly important.

The following spaces shall be provided within the International Zone:

- Main Entrance
 - Guest Pass Centre
 - Village Media Centre
 - Guest Parking/ Bus Holding
 - Main Entrance Vehicle Load Zone
 - Access Control Point
- Welcome Ceremony Plaza
- Commercial Centre
- Cyber café
- Bar
- Recreation Centre

- Zone Control Point

3.1.2 Location

The International Zone should be at the perimeter of the Village and also connected to the Residential Zone. It must be located in close proximity to vehicle parking and load zones adjacent for guests and visitors, and with connectivity to the primary road network. It should also be located in close proximity to public transportation/taxi ranks etc. to facilitate access for non-accredited visitors.

The location of the International Zone should also be considered with respect to achieving an appropriate level of separation from the Residential Zone for activities which may generate disturbance to the Residents.

3.1.3 Main Entrance

3.1.3.1 General Description

The Main Entrance of the Commonwealth Games Village will be the first point of arrival for the majority of Guests visiting the Village. As such it must be suitably prominent and designed to form an appropriate 'gateway' to the Village for visitors. The use of unique entry structures, high quality temporary buildings and structures, and extensive use of 'Look of The Games' should be considered.

The Main Entry will accommodate the following spaces:

- Guest Pass Centre;
- Village Media Centre;
- Guest Parking;
- Main Entrance Vehicle Load Zone; and
- Access Control Point.

3.1.3.2 Location

The Main Entrance shall be located on the perimeter of the Village and connect directly to the International Zone.

The Main Entrance must be well connected to primary road networks and public transport to facilitate visitor access.

3.1.4 Guest Pass Centre

3.1.4.1 General Description

The Village Guest Pass Centre is the location where CGA Guests will obtain their entry documents to access the Games Village. Media personnel will also utilize this facility. The Guest Pass Centre shall accommodate the following areas:

- Guest Pass Collection/Return Area;
- Guest Waiting Area;
- VIP Waiting Area;
- Staff Work Area; and
- Male and Female Toilets.

The following general issues should be considered in the design of the Guest Pass Centre:

- The Guest Pass Centre can be a permanent or temporary structure, and shall be of a high standard;
- The Guest Pass Centre shall be large enough to facilitate movement into and out of the Village effectively. The Guest Pass Centre should be able to accommodate 20 – 30 people at any one time; and
- The Guest Pass Centre shall be accessible for people with a disability.

3.1.4.2 Location

The Guest Pass Centre shall be located at the Main Entrance to the Village, outside of the secure perimeter and therefore before the Access Control Point to the International Zone.

Alternatively, the Guest Pass Centre can be located after the Access Control Point. This should be considered with respect to the Games security policy for the Village.

3.1.4.3 Guest Pass Collection/Return Area

An area for the collection and the return of passes shall be provided. The following should be considered in the design of this area:

- A 'front desk' or counter should be provided for the issuing of passes, of sufficient length to deal with multiple Guests simultaneously;
- A separate area should be provided for the return of Guest Passes; and
- Shelving and boxes should be available for storing Guest Passes and identification.

3.1.4.4 Guest Waiting Area

A small waiting area shall be provided for visitors waiting for the issuing of Guest Passes. This should accommodate up to 20 people in comfort. Tables and chairs shall be provided as required.

3.1.4.5 VIP Waiting Area

An additional waiting area for Games Family/VIP's shall be located within the Guest Pass Centre, separate to the general waiting area. This area should accommodate up to 10 people. This should contain comfortable furnishings.

3.1.4.6 Staff Work Area

A Staff Work Area shall be provided. The following shall be provided, as a minimum:

- An open plan work area should be provided for up to 10 staff. These workstations can be within the main area but separated by a partition or division wall, so as to be discreet from public areas; and
- Telephones, faxes, photocopiers, printers and computers will be required, with appropriate power and data services as required.

3.1.5 Village Media Centre

3.1.5.1 General Description

The Village Media Centre is a facility for all accredited and non accredited media to undertake their activities at the Village. The following facilities will be located within the Village Media Centre:

- Reception/Help Desk;
- Media Work Area;

- Press Conference Rooms;
- Interview Room; and
- Male and Female Toilets.

3.1.5.2 Location

Ideally, this facility would be located near to the Main Entrance, and outside of the secure perimeter of the Village.

3.1.5.3 Media Entry/Reception

A Media Reception shall be provided with the following facilities:

- An entry/reception area for media enquiries and distribution of media information; and
- Seating for up to 20 people.

3.1.5.4 Media Work Area

A Media Work Area shall be provided with the following facilities:

- A work area for the media to prepare and file their reports at workstations, with a minimum of 4 Games Information terminals and 5 Media workstations;
- A utility area including facsimile/photocopy machines; and
- Lockers for photographers.

3.1.5.5 Press Conference Rooms

Three Press Conference Rooms will be required, one to accommodate 200 people, and two to accommodate 25-50 people each. Each Press Conference Room shall contain:

- A raised platform at one end for tables and chairs for the interviewees, with lighting for broadcast;
- Seating for the Press with good views to the platform;
- A raised platform at the rear for television cameras; and
- An audio system.

3.1.6 Access Control Point

3.1.6.1 General Description

An Access Control Point (ACP) shall be provided at the Main Entrance to facilitate entry and exit for accredited Guests to the International Zone. This facility will accommodate facilities to effect an accreditation and security check for all Guests.

3.1.6.2 Location

The ACP should be located on the secure perimeter of the Village, and between the Guest Pass Centre and the International Zone (subject to OC security policy).

3.1.6.3 *Design Considerations*

The following issues should be considered in the design of the Access Control Point:

- The ACP shall be designed with appropriate shelter for the queuing of up to 20-30 people and to ensure the protection of security equipment (x-ray machines and magnetometers).
- The number of magnetometers and security check points within the facility should be based on the peak numbers of Guests arriving at the Village at any one time, with a view to avoiding excessive queuing within the facility.
- A solid base is required for the installation of security equipment.
- Suitable power and lighting will be required for x-ray machines, magnetometers, and lighting.
- The ACP shall have a separate exit route. The exit should be able to accommodate the movement of sporting equipment (e.g. bicycles), media cameras and other equipment which may need to be moved into and out of the Village.
- Tables should be located before and after the x-ray machines for Guests to place their personal items upon. Trays must be provided for small items and miscellaneous clothing.
- The ACP shall be accessible to people with a disability.
- The ACP shall be lockable in the case of an emergency or out of hours.
- A communication mechanism must be in place in case of problems, queries or emergencies experienced at the ACP. This can be facilitated by radio or a fixed telephone line connected to the Village Security Command Centre and/or Village Management.

3.1.7 *Guest Parking*

3.1.7.1 *General Description*

A Guest Parking and Bus Holding Area shall be provided near to the Main Entrance. This area should be designed to accommodate 30 – 50 cars and have a minimum of 2 bus bays to facilitate holding of shuttle buses for the Media. It should be noted that this area is separate to the parking area required for T1/T3 vehicles.

3.1.7.2 *Location*

The Guest Parking and Bus Holding Area shall be located near to the Main Entrance and must be well connected to the Main Entrance Load Zone and to the surrounding primary road network. Consideration should also be given to locating this area so as not to interfere with pedestrian movements at the Main Entry.

3.1.7.3 *Design Considerations*

The following additional issues should be considered in the design of the Guest Parking Area:

- The Guest Parking Area should have an appropriate hardstand surface to facilitate large vehicle movements.
- An appropriate level of lighting should be provided in this area, as vehicle movements will also occur at night.
- All areas of the Guest Parking should be fully accessible for people with a disability.

3.1.8 Main Entrance Load Zone

3.1.8.1 General Description

A Vehicle Load Zone shall be provided adjacent to the Main Entrance. This area shall be designed to accommodate the 'pick-up' and 'drop-off' of guests who arrive by vehicle to the Village.

3.1.8.2 Location

The Vehicle Load Zone should be located as close as possible to the Main Entrance and Guest Pass Centre of the Village. It should also be well connected to both the primary road network and the Guest Parking and Bus Holding areas.

3.1.8.3 Design Considerations

The following additional issues should be considered in the design of the Main Entrance Vehicle Load Zone:

- A Transport Desk will need to be located in close proximity to the Vehicle Load Zone for CGA Guests and media shuttle transfers.
- Shelter should be provided for Guests who are waiting for their vehicles.
- The Main Entrance Load Zone should be fully accessible for people with a disability.

3.1.9 Zone Control Point

3.1.9.1 General Description

The Zone Control Point (ZCP) is an internal control point between the Residential Zone and the International Zone. The ZCP will facilitate the checking of accreditations and Guest Passes of visitors entering the Residential Zone from the International Zone. Any person without appropriate access rights will not be permitted to access the Residential Zone of the Village.

It is recommended to maintain a single ZCP where possible. However, additional access may be required for Logistical and Staff movements between the commercial facilities in the International Zone and the Operational Zone. This access should be in a 'back of house' area and not visible to residents and Guests within the Village.

3.1.9.2 Location

The ZCP should be located on the fence line between the International and Residential Zone.

3.1.9.3 Design Considerations

The following additional issues should be considered in the design of the Zone Control Point:

- Shelter shall be provided for the staff operating the ZCP. This could be provided as a temporary shade structure; and
- A lockable gate shall be provided to secure the ZCP when not in use and in emergency situations.

3.1.10 Commercial Centre

3.1.10.1 General Description

A Commercial Centre shall be located within the International Zone of the Village so that residents or Guests can purchase essential items and access particular services that they require without leaving the Village.

The Commercial Centre shall consist of:

- General Store;
- Bank ;
- Call Centre and Mobile Phone Store;
- Hair Salon;
- Travel Agent;
- Merchandise Store;
- Post Office;
- Ticket Office; and
- WADA Outreach Office.

The following additional functions shall be provided as either 'stand alone' facilities or areas accommodated inside other facilities:

- Florist (can be accommodated within the General Store); and
- Dry Cleaning/Alterations.

The following facilities are optional though recommended:

- Photo and Camera Store; and
- CD, DVD and Electrical Appliances store.

3.1.10.2 Location

The Commercial Centre shall be easily accessible from the Main Entrance and be situated in a prominent location easily accessible to residents and Guests in the Village. The layout of the Commercial Centre should be such that all facilities are visible and the use of signage and 'Look of The Games' should be considered to provide an appropriate aesthetic

3.1.10.3 Design Considerations

The following additional issues should be considered in the design of all facilities within the Commercial Centre:

- The Commercial Centre can be permanent or temporary construction.
- Facilities within the Commercial Centre will require re-supply during the Games, therefore 'back of house' access from the Logistics Centre and other service areas will be required. This connection shall be discreet and not visible from 'front of house' areas.
- Dedicated storage areas shall be provided near the Commercial Centre or within the individual facilities to support re-supply of goods.
- All individual facilities shall be fully accessible.
- All individual facilities shall be provided with essential services (power, water, data).
- All individual facilities must be lockable.

- Shop fronts to the individual facilities shall be prominent.
- Walkways and corridors within the Commercial Centre shall be dimensioned sufficiently to cater for several hundred people using the area at one time. It is advisable not to locate facilities in 'dead ends' if possible.

3.1.10.4 General Store

A General Store shall be provided for the sale of personal healthcare items, snacks and beverages, books, magazines, office supplies, electronic goods, etc. with the following facilities:

- Appropriate shelving/display units for all goods;
- Lockable storage areas;
- Direct access to Back of House areas for re-supply; and
- Space for cash holding/safe facilities.

3.1.10.5 Bank

A fully functional Bank shall be provided with the following facilities:

- ATM machine with data connection;
- Teller services for currency transactions with waiting area;
- Bank manager's Office;
- Vault/safe; and
- CCTV facilities (if required).

3.1.10.6 Call Centre Shop

A Call Centre Shop shall be provided for the sale of mobile phones and accessories, calling Cards and technical assistance, with the following facilities:

- Sales counter;
- Help Desk facilities; and
- Private calling stations with data connections.

3.1.10.7 Hair Salon

A Unisex Hair Salon shall be provided with the following facilities:

- Reception area with product sales capability; and
- Hair washing and cutting stations.

3.1.10.8 Travel Agent

A Travel Agency shall be provided to assist with flight bookings and information and national/regional tourist services, with the following facilities:

- Service counters and waiting area for customers; and
- Display area for brochures, magazines and travel information.

3.1.10.9 Merchandise Store

A Merchandise Store for all licensed Games merchandise shall be provided with the following facilities:

- Appropriate retail display units for all goods;
- Lockable storage areas;
- Space for cash holding/safe facilities; and
- Connectivity to 'back of house' service areas within the Operational Zone.

3.1.10.10 Post Office

A fully functional Post Office shall be provided with the following facilities:

- Sales counters with sufficient queuing space;
- Retail display space within the facility;
- Separate mail sorting and storage room;
- Counter space for customers; and
- Connectivity to 'back of house' service areas within the Operational Zone.

3.1.10.11 Ticket Office

A fully functional Ticketing Office shall be provided with the following facilities:

- Ticket sales counters with appropriate queuing space; and
- Computer terminals with connectivity to the ticketing sales network.

3.1.11 Cyber Cafe

3.1.11.1 General Description

The Cyber Cafe is the one of the most popular facilities within the Village and is used exclusively by the Athletes and Officials. It consists of approximately 100 computer workstations with additional data access points and WIFI connections.

3.1.11.2 Location

The Cyber Cafe can be located in either the International Zone or Residential Zone of the Village. If located in the International Zone, additional internet locations should be considered within the Residential Zone. These additional locations could be facilitated within the Resident Centres.

3.1.11.3 Design Considerations

The following facilities should be considered in the design of the Cyber Cafe:

- A reception/helpdesk facility;
- Minimum 100 computer workstations with access to the Games information system (note some computers must be accessible for the disabled); and
- Centrally controlled printers within the Cyber Cafe.

3.1.12 Recreational Centre

3.1.12.1 General Description

A suitable Recreational Centre shall be provided within the Village. The use of the Recreational Centre shall be exclusive to the Athletes and Officials, and should have a relaxed, inviting atmosphere. Media access to this facility shall be restricted to a minimum.

Facilities to be accommodated in the Recreational Centre will include:

- Television Lounge;
- Table Games (e.g. Pool, Table Football, Air Hockey, etc.); and
- Stand Alone Games Machines (e.g. Pinball Machines, etc.).

3.1.12.2 Location

This can be accommodated in either a single Recreational Centre in the International or Residential Zones or as multiple Recreational Centres in various locations within the Residential Zone. These facilities should be located so as to facilitate exclusive access for Athletes and Officials.

3.1.12.3 Design Considerations

The following additional issues should be considered in the design of the Recreational Centre

- The Recreational Centre(s) can be in permanent or temporary buildings (tent structures are not advisable).
- The floor surface shall be flat and suitable be stable to hold pool tables and other machines.
- Suitable power requirements should be provided to run the games machines and televisions.
- The Recreational Centre shall be fully accessible for people with a disability.

3.1.13 Bar

3.1.13.1 General Description

In addition to the Recreational Centre, a Bar should be provided for Residents.

3.1.13.2 Location

The bar should be located in the International Zone and be away from any areas where noise disturbance may occur.

3.1.13.3 Design Considerations

The following additional issues should be considered in the design of the bar:

- The Bar should serve alcoholic and non-alcoholic beverages for the use of residents;
- The Bar shall be designed to hold live music events and should be able to accommodate up to 200 people comfortably;
- The Bar should be fully air conditioned; and
- The Bar should be fully accessible for people with a disability.

3.1.14 Welcome Ceremony Plaza

3.1.14.1 General Description

The Welcome Ceremony Plaza is the location where each CGA is required to be officially welcomed to the Commonwealth Games by the Organising Committee at a Ceremony held at the Games Village. The Welcome Ceremony Plaza should be a focal point, and prominent within the International Zone. The Ceremony stage can also be utilised as an entertainment Games Village site for live music and cultural shows. It is also possible for the Ceremony stage to be used for cinema activities at night exclusively for residents of the Village.

The Welcome Ceremony Plaza will consist of the following facilities:

- Covered Stage Area;
- Change Rooms for Performers;
- 'Green Room' (VIP lounge) for Dignitaries/Performers; and
- Seating Plaza for up to 500 people.

3.1.14.2 Location

The Welcome Ceremony Plaza should be located in the International Zone. It should provide a suitable backdrop for photographic opportunities and should be able to accommodate approximately 500 people. The Ceremony Stage should be situated away from residential buildings so that any noise disturbance is limited.

3.1.14.3 Design Considerations

The following additional issues should be considered in the design of the Welcome Ceremony Plaza:

- If climate is variable shelter should be provided for participants or spectators.
- A Public address system, lighting, and video system will be required for the Ceremonies and other potential entertainment activities. Storage areas and waterproof shelter should be available for all electrical items.
- Flag poles are required for those countries taking part in the Welcome Ceremony (maximum 5 countries). The Flags of the CGF, the host country and the host district should also be positioned at the Ceremony location.
- The Ceremony stage can act as a good media interview location when not in use.
- The stage and seating area shall be wheelchair accessible.

3.2 RESIDENTIAL ZONE

General Description

The Residential Zone is the largest zone within the Commonwealth Games Village. It is a secure zone within the Village where residents undertake their daily routine without interruption from the Media or Guests. The following facilities will be located within the Residential Zone:

- Residential Accommodation;
- CGA Facilities;
- Resident Centres;
- CGA Services Centre;
- Sports Information Centre;

- Chef de Mission Meeting Room;
- Main Dining Facility;
- Casual Dining Facility;
- Staff Dining Facility;
- Polyclinic;
- Recreational Facilities; and
- Religious Centre.

The Residential Zone is generally developed using permanent construction with some temporary structures required for additional facilities.

Location

The Residential Zone must be located away from other active areas within the Village to ensure privacy for the residents.

It should have a direct and secure link to the Athlete Transport Mall, which in turn should be well connected to the primary road network connecting the Village to the competition and training sites.

Operational areas and 'back of house' services should be located away from the Athletes and Officials activities in the Residential Zone where possible, and be discreet from residents.

Design Considerations

The following additional issues should be considered in the design of the Residential Zone:

- The Residential Zone must have good internal circulation, both pedestrian and vehicular. All services must be accessible for all residents.
- The Dining Hall, Polyclinic and Athlete Transport Mall should be located in close proximity to the residential accommodation, however in locating these facilities consideration should be given to minimizing bus traffic noise so as to not adversely affect the residents.
- The Residential Zone should be linked by a Zone Control Point to the International Zone.
- Access to CGA car parking and pedestrian entrances / exits for the Residential Zone shall to be provided.
- Services within the Residential Zone need to be visible and easily identifiable to the residents. These facilities should be located on major pedestrian routes and appropriate signage and wayfinding should be implemented to facilitate identification.
- An appropriate level of landscaping should be provided to enhance the experience and image of the Residential Zone.

3.2.1 Residential Accommodation

3.2.1.1 General Description

The residential buildings must provide accommodation for all eligible Athletes and Officials. A contingency of extra rooms is required, approximately 3%. Residential accommodation can be provided in the form of apartments, hotels or houses. This will be dependent on the legacy concept for the Village. Some supplementary accommodation can be provided in the form of temporary structures, however a high standard of accommodation must be maintained irrespective of whether the accommodation is permanent or temporary. All accommodation should be provided at a consistent standard to ensure equity amongst the residents of the Games Village. Where temporary accommodation is provided, it shall be at a similar standard to permanent accommodation.

3.2.1.2 **Location**

Residential accommodation should be conveniently located to the main services of the Residential and International Zones and have an efficient internal transportation system.

Residential accommodation should not be located in close proximity to buildings external to the Village that overlook the Residential Zone. Railways, main roads, waterways or pedestrian areas that are nearby can be security risks and/or can provide noise disturbance to the residents. Where possible, Residential accommodation should be at least 100 metres from any external buildings or roads near the Village.

Where possible, Residential buildings should incorporate CGA Offices, Medical Spaces and Storage. If this is not possible these facilities should be located adjacent or very close to the CGA's residence.

3.2.2 **Residential Units**

The following design criteria shall be considered with respect to the design of residential units:

- Individual residential units can be in any configuration. (Note: the larger the apartment the more complex the Village allocation process). Each residential unit should house a minimum of 2 and a maximum of 14 residents.
- Living space should be provided in each building for athletes and officials to congregate and relax.
- Kitchen areas or Garages (legacy mode) can be used adequately as bedrooms for the Games.
- Each apartment and bedroom must be lockable.

3.2.2.1 **Bedrooms**

The following criteria apply to Bedrooms within the Residential units:

- Each bedroom must be configured for no more than 2 persons at any one time and be a minimum size of 12m².
- Men and Women shall not be accommodated in the same bedroom
- Athletes of different competing nations shall not be accommodated in the same bedroom
- Each bedroom must have:
 - Curtains/blinds to block sunlight;
 - Bed linen, pillows and blankets;
 - 60cm hanging space;
 - At least 3 drawers of storage space (one must be lockable for valuables);
 - Beds must be 2.00metre in length with additional long beds available (it is recommended that approximately 20% of the beds shall be 2.20 metres in length and these should be distributed according to team delegation requirements;
 - Bedside lamps, clothes hangers and wastebaskets should be provided; and
 - Each residential unit shall have television, telephone, and internet connections.

3.2.2.2 **Bathrooms**

The following criteria apply to Bathrooms within the Residential units:

- The maximum ratio of bathrooms to occupants is 4:1

- Bathrooms should be within or directly adjacent to the residential units
- Each bathroom must have:
 - Wash basin;
 - Lavatory;
 - Shower;
 - Mirrors;
 - Toilet brush, shower, curtain, toilet holder and paper;
 - Suitable lighting and extract fans if no natural light or ventilation; and
 - Fixtures for Athletes and Officials with a disability (e.g. grab rails), where the residential unit is allocated for EAD Athletes.

3.2.2.3 Living Spaces

Living spaces shall be provided in all Residential Units, of a size appropriate to the number of residents in each unit. With respect to hotel style accommodation, adequate living space should be provided on each floor for each delegation, to comfortably accommodate the number of residents. Where there are multiple delegations per floor, these spaces can potentially be combined, if appropriate and as determined in conjunction with the Organising Committee and the CGF. In general, the proposed distribution of living spaces throughout the Village shall be subject to the approval of the Organising Committee and CGF based on projected allotment model.

Living spaces shall have appropriate soft furnishings and televisions.

3.2.2.4 Chef de Mission Accommodation

The Chef de Mission for each delegation shall have a single occupancy room within the Village. The following criteria apply to residential units for the Chef de Mission for each delegation.

- Each Chef de Mission room must be a single occupancy room and have:
 - Desk and Chair;
 - Telephone (with local and international access);
 - Television (with live Games coverage); and
 - Small refrigerator.

3.2.2.5 Accessibility

With respect to accessibility for Residential Units, it is a requirement to have fully accessible units distributed throughout the Games Village to accommodate EAD Athletes. The specific number of Athletes and their distribution will not be available until nearer to Games time, and as such it is proposed that the Agency work with the Organising Committee and the Commonwealth Games Federation to establish the appropriate strategy in terms of the provision of accessible residential units.

3.2.2.6 Vertical Transportation

The Agency is responsible for demonstrating that vertical transportation systems (lifts) within the Residential Buildings will adequately accommodate the population of each building during the Games, in accordance with acceptable international standards with respect to waiting times, safety and comfort. It should be noted that if the Games time population of these buildings is significantly greater than the Legacy population, additional lifts or other appropriate solutions may be required to ensure an adequate level of service.

3.2.3 CGA Facilities

3.2.3.1 General Description

All CGAs are entitled to Offices, Medical Spaces and Storage facilities. The size and number of rooms for these CGA spaces will not be clearly understood until closer to Games time, therefore the design of the spaces should be 'generic' and able to be increased or decreased in size based on the requirements of the individual delegation.

The following is a guideline for CGA Office requirements:

CGA OFFICE TYPE	APPROXIMATE CGA DELEGATION SIZE	SIZE IN SQUARE METRES	Chef's Office	Team Office/ Meeting	Medical	Physio	Bathroom (basin with hot and cold water)	NUMBER PROVIDED (71)
Type 0	0-10	9	9	Bookable	Bookable	Medical Centre	-	8
Type 1	10-25	18	9	9	Bookable	Medical Centre	-	14
Type 2	25-60	36	9	18	9	Medical Centre	5	21
Type 3	60-100	72	9	27	18	18	5	14
Type 4	100-250	90	9	40	18	18	5	6
Type 5	250-400	108	9	40	27	27	5	5
Type 6	400-500	126	9	61	30	21	5	1
Type 7	500-600	144	9	64	30	36	5	1
Type 8	600+	180	9	91	30	45	5	1

With respect to the above Office types, it should be noted that each CGA delegations may vary the actual space requirements between the individual areas, subject to their specific needs. The following overall FF&E items shall be provided for each delegation relative to the above CGA Office types:

MINIMUM FURNITURE AND EQUIPMENT ALLOCATION BY OFFICE TYPE	CGA OFFICE TYPE								
	0	1	2	3	4	5	6	7	8
Bookcase - 4 Shelves	0	1	1	1	1	1	1	2	2
Cabinet - 2 Doors	0	0	1	2	2	3	3	3	3
Chair-Folding Padded	2	8	15	22	32	35	41	47	53
Chair – Office	1	1	2	3	3	4	4	4	4
Coat Rack	1	1	1	1	1	1	1	1	1
Computer and printer with access to the Games information system including, administration of the Village, transport timetables, starting lists and electronic messages, etc.	1	1	1	1	1	1	1	1	1
Desk - 3 Drawers	1	1	2	3	3	4	4	4	4
Desk Lamp – Electric	1	1	2	3	3	4	4	4	4
Esky (Cool Box) 44 Litres	1	1	1	1	1	1	1	1	1
Examination Lamp	0	0	1	2	2	3	3	3	3
Facsimile machine	1	1	1	1	1	1	1	1	1
Filing Cabinet – 4 Drawers	1	1	1	1	1	1	1	1	1
Kettle – Electric	1	1	1	1	1	1	1	1	1
Massage/Examination Table	0	0	2	4	4	6	6	6	7
Multi-Function Fax/Copier/Printer	1	1	1	1	1	1	1	1	1
Notice Board	1	1	2	3	3	4	4	4	4
Pedestal Fan	1	1	1	1	1	1	1	1	1
Refrigerator - 230 Litres	0	0	0	1	1	1	1	1	1
Refrigerator - 95 Litres (Chef de Mission office)	1	1	1	1	1	1	1	1	1
Safe – Medium	1	1	1	1	1	1	1	1	1
Stool – Medical	0	0	1	2	2	3	3	3	4
Table-Folding	0	1	2	3	5	5	6	7	8
Table Round	1	1	1	1	1	1	1	1	1
Telephone Handset	2	2	2	2	2	2	2	2	2
Television	2	2	2	2	2	2	2	2	2
Video Recorder	1	1	1	1	1	1	1	1	1
Wall Clock	1	1	1	1	1	1	1	1	1
Waste Bin – Recycling	1	2	3	4	4	5	5	5	6

3.2.4 Chef de Mission Offices

3.2.4.1 General Description

A separate office shall be provided for each Chef de Mission. Each office shall accommodate, as a minimum:

- Desk and Chair;
- Telephone (with local and international access);
- TV; and
- Small Refrigerator.

3.2.5 CGA Team Office/Meeting Spaces

3.2.5.1 General Description

Each CGA is entitled to have a working space to complete their team administration tasks during the Games, with the exception of some smaller delegations, who will have access to a bookable space to be provided within the Residential Zone.

3.2.5.2 Location

CGA Team Office/Meeting Spaces must be situated within the CGA residence or adjacent.

3.2.5.3 General Description

The following additional issues should be considered in the design of the CGA Office/Meeting spaces:

- The office/meeting space can be in permanent or temporary structures.
- The office/meeting space must be lockable.
- For small delegations one or more bookable spaces shall be provided (possibly located at a Resident Centres). These spaces shall be fully equipped in accordance with the general requirements for CGA Team Offices as outlined above. The number and location of these spaces shall be agreed between the Agency and the OC, though they should be located in a convenient location, easily accessible by the smaller CGA delegations.
- CGAs may request to put CGA Team Office into their residential building. This is acceptable as long as it is achieved within the team quota and does not affect the overall contingency for residential units.

3.2.6 CGA Medical/Physiotherapy Spaces

3.2.6.1 General Description

For type 3 offices and above, a lockable and private team medical office / space shall also be provided. This will generally consist of a Medical Treatment Space and Physiotherapy Room(s), either as separate spaces or consolidated into one area within the Team Office Area. Medical Spaces shall include the following:

- Private doctors consultation room;
- Examination table;
- Examination stool;
- Examination lamp;

- Desk;
- Chairs;
- Lockable cabinet for medical supplies;
- Waste paper baskets;
- Sharps disposal units;
- Disposal paper towels; and
- Clothes rack and hanger.

Medical space should also include the following in proportion to the team size:

- Massage tables;
- Waste paper basket;
- Clothes rack;
- Chairs;
- Lockable cabinets;
- Coolers;
- Disposable paper towels and linen towels for physiotherapy; and
- A wash basin with hot and cold water supply should be included within team medical space or team doctor's office.

3.2.6.2 Location

CGA Medical/Physiotherapy Spaces shall be situated within the CGA residence or adjacent. Ideally, these facilities should be placed adjacent to the CGA Team Office and should be close to bathroom facilities.

3.2.6.3 Design Considerations

The following additional issues should be considered in the design of the CGA Medical/Physiotherapy Spaces:

- The CGA Medical/Physiotherapy Spaces can be situated in permanent or temporary structures.
- The CGA Medical/Physiotherapy Spaces must be lockable.
- For small delegations one or more bookable spaces shall be provided (possibly located at a Resident Centres). These spaces shall be fully equipped in accordance with the general requirements for CGA Medical Spaces as outlined above. The number and location of these spaces shall be agreed between the Agency and the OC, though they should be located in a convenient location, easily accessible by the smaller CGA delegations.

3.2.7 CGA Storage Space

3.2.7.1 General Description

Dedicated storage space shall be provided for each CGA. These spaces should be lockable enclosures in close proximity to the residential areas for each delegation. Consideration can be given to utilising underground parking areas for storage, or other suitable space within the residential buildings. They should accommodate access for small vehicles and trolleys, and be suitable for sports equipment, including bicycles etc.

3.2.8 Resident Centres

3.2.8.1 General Description

Resident Centres provide a range of services for the residents of the Village, including housekeeping, general information and problem resolution.

Each Resident Centre shall service a maximum of 1000 residents, and no resident should walk more than 250m to a Resident Centre. Whilst it is not a requirement to have a Resident Centre in each Residential Building, these facilities should be evenly distributed so as to be convenient to all residents.

At least one of the Resident Centres must be available 24 hours/day.

The following facilities shall be provided within each Resident Centres:

- Reception/Front desk;
- TV Lounge;
- Housekeeping Storage;
- Vending Machine and Ice Machine; and
- Public Payphones.

The following spaces should be provided within selected Resident Centres, evenly distributed across the Residential Zone:

- CGA Business Centres; and
- Laundry Facilities.

The following additional spaces are recommended within Resident Centres:

- WIFI Hotspots;
- Cyber Café;
- Games Room; and
- Meeting Rooms.

3.2.8.2 Location

Resident Centres should be dispersed throughout the Village and planned strategically to ensure convenient access for all residents. Dependent on the design of individual residential buildings, Resident Centres could be located within each building.

3.2.8.3 Laundry Facilities

The following should be considered with respect to Laundry facilities:

- Laundry facilities should be distributed throughout the Residential Zone, with a maximum of 4-5 laundries in total. If self-service laundries are provided, washing machines shall be provided at a ratio of 1:50 and driers at a ratio of 1:70 per resident. Laundries will require adequate hot and cold water supply and power. Waste removal and sewerage needs to be considered. Generally, washing machines will be a cold wash. Temperature control mechanism and vents may be required for laundry.
- Laundry can be a self service or serviced facility.

3.2.9 CGA Services Centre

3.2.9.1 General Description

The CGA Services Centre is a central communication and service centre provided for all CGAs. It provides information and facilitates problem resolution for Chefs and Officials of the CGAs. The following facilities will be required within the CGA Services Centre:

- Reception/Information;
- Transport Desk;
- Finance and Rate Card Desk;
- Technology Desk;
- CGA Services Administration Offices (max. 3 people);
- Meeting Room;
- CGA Services Staff Work Area (6 workstations);
- CGA Assistants Office;
- CGF Office; and
- Male and Female Toilets.

3.2.9.2 Location

The CGA Services Centre should be located in close proximity to residential accommodation. Ideally, the CGA Services Centre would be located adjacent to the Sports Information Centre, in which case some sharing of facilities would be possible.

3.2.9.3 Design Considerations

The following additional issues should be considered in the design of the CGA Services Centre:

- The CGA Services Centre can be in a permanent or temporary structure;
- All spaces should be fully accessible for people with a disability;
- All spaces require computer terminals and connections, lockable cupboards, tables and chairs and Games network telephones; and
- Games feed television should be available in the CGA Services Centre.

3.2.9.4 Reception/Information Desk

- A Reception/Information Desk shall be provided which should accommodate fax, printing and photocopying facilities.
- The Reception/Information Desk should have in close proximity a mailbox system. CGAs will collect mail from this location.

3.2.9.5 Transport, Finance and Rate Card, Technology Desks

- Desks should be provided for CGA enquiries and services for Transport, Finance and Rate Card and technology. These desks should be semi-private booths, and could be located in an open area near to the reception.
- All desks should be provided with appropriate power and data services, with computer terminals connected to the Games Information system.

3.2.9.6 CGA Services Administration Offices

CGA Services Staff will require 3 administration offices. Each office should accommodate up to 3 people and should have appropriate power and data connections:

3.2.9.7 Meeting Room

- A Meeting Room for up to 20 people shall be provided for general sport meetings. If the Sport Information Centre is located near to the CGA Services Centre, these spaces could potentially be shared.

3.2.9.8 CGA Services Staff Work Area

- An open plan work area for 6 people shall be provided within the CGA Services Centre. This should comfortably accommodate 6 workstations and should have a resources area with printer, photocopier etc. This should be located adjacent to the CGA Services Administration Offices and CGA Assistants Office.

3.2.9.9 CGA Assistants Office

- A CGA Assistants shall be provided. This should be located adjacent to the CGA Services Administration Offices and the CGA Services Staff Work Area.

3.2.9.10 CGF Office

- An office space for CGF Staff shall be provided

3.2.10 Sports Information Centre

3.2.10.1 General Description

A Sports Information Centre is required within the Residential Zone for CGAs to obtain sport information, transport support/information, results/schedules etc and general support. . The following facilities are required within the Sports Information Centre:

- Reception/Waiting Area;
- Transport Desk;
- Sport Information Desks (1 per Sport);
- Results Production Office;
- Sport Entries Office; and
- Meeting Room

3.2.10.2 Location

The Sport Information Centre should be located close to the residential accommodation and if possible should be located adjacent to the CGA Services Centre and the Chef de Mission Meeting Hall.

3.2.10.3 Design Considerations

The following general issues should be considered in the design of the Sports Information Centre:

- The Sports Information Centre can be provided in permanent or temporary structure.

- All areas within the Sport Information Centre will require Games Information System connectivity, data, international telephone connections, faxes and printers.

3.2.10.4 Reception/Information Desk

- A Reception/Information Desk shall be provided which should accommodate fax, printing and photocopying facilities.

3.2.10.5 Transport Desk

- A Transport Desk should be provided for CGA delegation enquiries and services for Transport. This desk should be a semi-private booth, and could be located in an open area near to the reception.

3.2.10.6 Sport Information Desks

- The Sport Information Desks should be in the form of a semi-private booth for each sport. Each booth should be equipped with Games network telephone and computer with Games Information System connectivity.
- Some Sport Information Desks could potentially be shared for smaller sports with a relatively short program.
- A number of 'stand alone' Games Information Systems should be available within the Centre (minimum 3 stations).

3.2.10.7 Results Production Office

- A separate results production space shall be provided with printers and photocopiers to support the Sport Information Desks. This area should be convenient to the Sport Information Desks, though can cause noise disturbance which should be considered in the design and location of the space.

3.2.10.8 Sport Entries Office

- A Sport Entries office shall be provided for sport entry data input for 3-4 people, consisting of open plan workstations.

3.2.10.9 Meeting Room

- A Meeting Room for up to 20 people shall be provided for general sport meetings. If the Sport Information Centre is located near to the CGA Services centre, these spaces could potentially be shared.

3.2.11 Chef de Mission Meeting Room

3.2.11.1 General Description

A meeting room is needed for the Chefs de Mission meetings held in the Village where the Organising Committee and the CGAs will convene regularly. The Meeting Room should comfortably accommodate 200 people. The Chefs Meeting Hall can be also used for internal CGA meetings and volunteer or Organising Committee staff meetings. Other uses for this space which should be considered are as follows:

- Cinema (for Village Residents); and
- Alternative location for a CGA Welcome Ceremony (in the case of inclement weather).

3.2.11.2 *Location*

The location of this meeting room can be in either the International or Residential Zone. It should be suitably located in relatively short distance to the residence buildings.

3.2.11.3 *Design Considerations*

The following additional issues should be considered in the design of the Chef de Mission Meeting Rooms:

- The Chef de Mission Meeting Room should accommodate the following facilities:
 - Microphones/sound system;
 - Projector and screen; and
 - Stage/Podium.
- Additional meeting rooms should be provided within the as bookable meeting spaces for CGAs. These rooms will generally be used for team meetings for individual sports. Each meeting space should have a white board, tables and chairs and have the capability to connect television, video and DVD if requested by the CGA.

3.2.12 *Main Dining Hall*

3.2.12.1 *General Description*

The Main Dining Hall is the primary Dining facility for Athletes and Officials in the Village. The Dining Hall must provide suitable hot and cold food of good nutritional quality and variety.

Food selection should take into account the cultural and religious groups at the Games (e.g. Indian, Asian, Pacific Basin nationalities, European).

The Main Dining Hall should accommodate of the following areas/spaces:

- **Front of House Areas:**
 - Main Dining Hall Entry;
 - Baggage Claim Area;
 - Main Dining Hall Seating;
 - Food and Beverage Serveries; and
 - Male and Female Toilets.
- **Back of House Areas:**
 - Preparation Kitchen;
 - Refrigerated Storage;
 - Dry Storage;
 - Loading Dock;
 - Ware-Washing facilities for dishes, glasses, etc.;
 - Waste Compound;
 - Staff Changing Rooms;
 - Male and Female Toilets; and
 - Catering Managers Office.

3.2.12.2 Location

The Main Dining Hall is a core component of the Village must be centrally located to be easily accessible to all residents. The Main Dining Hall must have a service road for deliveries and waste removal in a 'back of house' area, and should have adequate space for the loading/unloading of goods. Additional space will be required for temporary generators, a/c, etc. as required.

Where possible it is desirable to locate the Main Dining Hall in close proximity to the Village Transport Mall and Residential Accommodation. This should be considered in the development of the Village master plan.

3.2.12.3 Design Considerations

The following additional issues should be considered in the design of the Athlete Dining Hall:

- The Dining Hall and associated facilities can be developed as temporary structures.
- The Main Dining Hall should be fully accessible for people with a disability.
- The Dining Hall must be able to accommodate 33% of the residents at any one time and must operate hot and cold food service on a 24 hour basis.
- The respective movements of residents and staff within the Main Dining Hall should be considered whilst developing the layout. Staff movements and loading docks should be in a discreet 'back of house' area.
- Residents and Guests will be checked at the entry to ensure they have appropriate accreditation, and space should be allocated for this function.
- A baggage check facility should be located at the main entry to accommodate at least 600 bags at any one time. No baggage will be allowed into the Main Dining Hall.
- Male and Female toilet facilities must be available at the Main Dining Hall. The number of toilet facilities should be based on the anticipated peak demand.
- At least 4 serveries should be provided for hot food, 2 serveries for cold food and one large beverages station. Beverage stations generally consist of refrigerators and post-mix syrups. Food stations typically accommodate:
 - Hot service, BBQ, grill, steamed meat;
 - Cooked vegetables;
 - Pasta/Pizza station;
 - Indian/Asian station;
 - African station (can be incorporated into menu);
 - Salad and fruit bar;
 - Breads and cereals station;
 - Cold meat and cheese station; and
 - Desert bar including ice cream and yogurts.
- An area for trays, cutlery and napkins should be placed in convenient locations in close proximity to, and before the hot serveries.
- The serveries should be located away from entrances and exits to avoid congestion and should have ample pedestrian space in front to allow for queuing.
- Hot and Cold serveries should be kept separate and drinks stations should be placed away from hot food stations to avoid congestion.
- An appropriate system of waste disposal and tray deposit should be developed within the Main Dining Hall. These facilities will be required in multiple locations.

- Essential utilities and services including gas supply, electricity supply with back up generator power will be required.
- Waste disposal containers/compactors will be required adjacent to the Main Dining Hall in a 'back of house area'. The flow of waste should be designed so as not to conflict with the delivery of goods into the facility.

3.2.13 Casual Dining Hall

3.2.13.1 General Description

The Casual Dining Hall provides an alternative and different dining experience for Athletes and Officials. It also provides an overflow to the Main Dining at peak times. (Casual dining does not operate a 24 hour service but helps to alleviate congestion at the Main Dining, generally at breakfast and dinner times). The Casual Dining Hall should accommodate approximately 100-200 people.

The Casual Dining Hall should accommodate the following spaces:

- Casual Dining Hall Seating;
- Cooking Stations with Hot Serveries;
- Cold Food Station;
- Beverages Station;
- Waste Disposal Station;
- Kitchen Preparation Area;
- Dry Storage Area; and
- Refrigerated Storage Area.

3.2.13.2 Location

Ideally the Casual Dining Hall should be located in a different area of the Residential Zone to the Main Dining and therefore be convenient to residents' located remote to the Main Dining Hall.

3.2.13.3 Design Considerations

The following additional issues should be considered in the design of the Casual Dining Hall:

- Food preparation areas can be developed within the Casual Dining facility or preparation could potentially be undertaken at the Main Dining and transported to the Casual Dining if appropriate.
- A baggage check area is not usually required, however an entry accreditation check will be undertaken at the main entry to the Casual Dining Hall.
- External Dining areas should be considered at the Casual Dining Hall as this is often an attractive style of dining for Village residents.

3.2.14 Polyclinic

3.2.14.1 General Description

The Polyclinic shall be a purpose built medical facility for the exclusive use of the Village residents. The Polyclinic will also provide support, as required, to Games Family.

It should be noted that the scale of the Polyclinic and the medical services provided will be dependent on the availability of a high standard medical facilities (i.e. hospital) in close proximity to the Village. If

such a facility is not available, the level of service and facilities within the Polyclinic may need to be increased from the minimum requirement outlined below.

The Polyclinic should provide the following facilities, as a minimum:

- Reception/Waiting area (seating for approximately 20 people);
- Administration Offices;
- General Outpatient Care Facilities;
- Emergency Care Facilities;
- Physiotherapy Care;
- Pharmacy;
- Radiological Services;
- Laboratory Services;
- Dental and Optical Care Facilities;
- Podiatry;
- Male and Female Toilets; and
- Doping Control Facilities.

3.2.14.2 Location

The Polyclinic must be located with an external entrance/exit to the Village for emergency vehicle access. It should be located in a convenient location for all Village residents.

3.2.14.3 Design Considerations

It is recommended that a specialist medical facility planner be engaged to assist with the design of this facility, and as such detailed briefing for the individual components of the Polyclinic are not provided within this Venue Brief.

The following general issues should be considered in the design of the Polyclinic:

- The Polyclinic can be accommodated in an existing specialized building or can be developed as a temporary structure.
- MRI facilities can be located in a temporary portable building or trailer.
- The Polyclinic must have an adequate power supply and back up power supply will be required.
- Water supply is required for all parts of the Polyclinic.
- All internal finishes should be specified to allow for ease of cleaning and maintaining throughout the Games.
- Adequate external area should be provided for Ambulance parking and efficient access.
- Male and Female toilets should be provided within the Polyclinic.

3.2.14.4 Doping Control

Doping control facilities, to the requirements of the World Anti-Doping Agency (WADA), shall be provided for use during the Commonwealth Games.

The facilities include:

- **A Reception/Waiting area**

To include a reception desk, a seating waiting area for up to 90 people, and a drinks fridge;

- **Processing Areas**

Three processing areas shall be provided. Each area shall contain a table, four chairs, a storage cabinet and a lockable fridge for samples;

- **Toilets**

Three toilets shall be provided. Each toilet shall be large enough to accommodate the athlete and the chaperone. From previous experience, disabled toilets are a good solution;

- **Office/Storage**

A small lockable office shall be provided within the Doping Control Station; and

- **Chaperone Waiting Area-** A small waiting area for chaperones shall be provided.

This is a restricted area, accessible only to authorised personnel. Access to the Doping Control should be separate to the other entrances to the Polyclinic.

3.2.15 Recreational Facilities

3.2.15.1 General Description

Recreational facilities should be provided within the Residential Zone. These should consist of facilities for leisure activities for the Village residents. The following shall be provided as a minimum:

- Fitness Centre; and
- Jogging Track and/or open area for Athletes.

3.2.15.2 Location

These facilities can be located anywhere in the Residential Zone, though should be convenient to the residential accommodation.

3.2.15.3 Fitness Centre

- The Fitness Centre can be developed as permanent or temporary structures/facilities.
- The Fitness Centre shall be fully accessible for people with a disability.
- Saunas shall be provided within the Fitness Centre.

The following Facilities shall be provided within the Fitness Centre, as a minimum:

Cardio/Weights Area

The Cardio/Weights area should contain the following facilities as a minimum:

- 5 treadmills, 5 stationary bikes and 2 rowing machines.
- 3 free weight stations and a range of dumbbells and barbells for use. Weight machines are also recommended. (Note: Floor material should be suitable to hold free weights and treadmills).
- An open area for stretching or static exercises.
- Ceiling mounted televisions and sound system.

Change Rooms

A minimum of two change rooms shall be provided to accommodate the requirements for athletes. The size and configuration of the change rooms shall allow for but not be limited to the following:

- 20 people to use each change room;
- At least one massage table;
- Lockers for each athlete;
- Seating or benching; and
- At least four showers, toilets and hand basins, as well as mirrors, hand driers and dispensers.

3.2.15.4 Additional Sports Facilities

In addition to the recreational facilities, a number of additional sports facilities have been identified for Athlete Training/Recreation at the Village. These are as follows:

- Indoor Hall;
- Swimming Pool; and
- Athletics Track/Playing Field.

These facilities are proposed as a 'legacy' project for the Village site, and it is understood that they will form the basis for a multi Sport Complex in the longer term. The following issues will need to be considered for the development of these facilities:

- If these facilities are to be used for training and for general utilization of the Village residents, an operational solution will be required to facilitate the use for both users. In general, Games village training sites (during a Games) are not available for recreational use.
- Access privileges for training Games village sites will be more extensive than access privileges for the Village Residential Zone. Media and Athlete coaches may have access to training Games village sites. Therefore, if located at the Village, the additional sport facilities may require an independent perimeter with an Access Control Point into the Residential Zone of the Village (and other zones depending on its location).

3.2.16 Religious Centre

3.2.16.1 General Description

A Religious Centre needs to be provided for residents for prayer, counselling and meditation.

3.2.16.2 Location

The Religious Centre can be situated anywhere in the Residential Zone, though should be in a relatively quiet and secluded area if possible.

3.2.16.3 Design Considerations

The following additional issues should be considered in the design of the Religious Centre:

- Two multi-purpose prayer rooms should be made available for residents of the Village. These rooms should be suitable for any religious denomination.
- A storage area is required for religious items.
- Space should be provided for private counselling.
- Shoe racks and bathroom facilities should be provided within the Religious Centre.

3.2.17 Access Control Points (ACP)

3.2.17.1 General Description

Access control points should facilitate entry and exit for residents and staff to and from the Residential Zone of the Village.

3.2.17.2 Location

ACPs should link the Residential Zone to external areas, particularly if the Village is located near to local commercial/retail areas or public transport. ACPs connected to local parklands are also recommended.

The number of ACPs should be limited but should ensure that all residents can enter and exit the Village at convenient locations if required.

3.2.17.3 Design Considerations

The following additional issues shall be considered in the design of the Access Control Points:

- The ACP shall be designed with appropriate shelter to ensure the protection of security equipment (x-ray machines and magnetometers). Shelter could be provided as a temporary structure.
- A solid base is required for the installation of security equipment.
- Suitable power and lighting will be required for x-ray machines, magnetometers, and lighting.
- The ACP shall have a separate exit route. The entry and exit should be able to accommodate the movement of sporting equipment (e.g. bicycles), media cameras and other equipment which may need to be moved into and out of the Village.
- Tables should be located before and after the x-ray machines for Residents to place their personal items upon. Trays must be provided for small items and miscellaneous clothing.
- The ACP shall be accessible for people with a disability.
- The ACP shall be lockable in the case of an emergency or out of hours.
- A communication mechanism must be in place in case of problems, queries or emergencies experienced at the ACP. This can be facilitated by radio or a fixed telephone line connected to the Village Security Command Centre and/or Village Management.

3.3 OPERATIONAL ZONE

General Description

The Operational Zone of the Village will accommodate a range of facilities required to ensure the efficient operation of the Village.

The following specific areas will be located within the Operational Zone of the Village:

- Access Control Points;
- Vehicle Check Points;
- Athlete Transport Mall;
- Village Accreditation Centre;
- CGA Parking;
- Village Motor Pool;

- Village Operations Centre;
- Security Command Centre;
- Logistics and Technology Centre;
- Waste Management Compound
- Workforce Centre; and
- Housekeeping Facilities.

Location

The Operational Zone should be located in an area adjacent to, and directly linked to both the International Zone and Residential Zones. It must be well connected to the primary road network as the majority of deliveries to the Village will enter through the Operational Zone. The Operational Zone must be also be well connected to the major commercial and dining facilities in the BOH area, so as to facilitate effective and discreet service access to these facilities.

Design Considerations

The following additional issues should be considered in the design of the Operational Zone:

- The Operational Zone can be developed with the use of temporary structures.
- Roads, parking areas and loading areas should be sufficiently sized and specified to allow for effective servicing of the Village.
- 'Back of House' connectivity to all key facilities within the Village should be considered in the planning of the Operational zone.
- There will be extensive requirements for permanent and temporary utilities (including power, water, technology and waste management systems) within the Operational zone.

3.3.1 Access Control Points (ACP)

3.3.1.1 General Description

Access Control Points are required to manage the movement of resident, Staff and Goods into the Village at various locations.

3.3.1.2 Location

Access control points are required at various locations within the Operational Zone to facilitate the movement of staff and goods into this zone. In addition, Major ACPs will be required at the Athlete Transport Mall and Accreditation Centre.

3.3.1.3 Design Considerations

The following additional issues should be considered in the design of Access Control Points:

- The ACP shall be designed with appropriate shelter to ensure the protection of security equipment (x-ray machines and magnetometers). Shelter could be provided as a temporary structure.
- A solid base is required for the installation of security equipment.
- Suitable power and lighting will be required for x-ray machines, magnetometers, and lighting.
- The ACP shall have a separate exit route. The entry and exit should be able to accommodate the movement of sporting equipment (e.g. bicycles), media cameras and other equipment which may need to be moved into and out of the Village.

- Tables should be located before and after the x-ray machines for Residents to place their personal items upon. Trays must be provided for small items and miscellaneous clothing.
- The ACP needs to be accessible for people with a disability.
- The ACP shall be lockable in the case of an emergency or out of hours.
- A communication mechanism must be in place in case of problems, queries or emergencies experienced at the ACP. This can be facilitated by radio or a fixed telephone line connected to the Village Security Command Centre and/or Village Management.

3.3.2 Vehicle Security Checkpoint

3.3.2.1 General Description

All vehicles entering the site will be liable to a security search of both the vehicle and the occupants. A Vehicle Security Checkpoint, with facilities for vehicles and their occupants to be stopped and searched shall be provided. To avoid delays to critical vehicles, such as Athlete buses or emergency vehicles, the design of the Vehicle Security Checkpoint shall allow searches to be carried out without blocking the road.

Out of hours, the Vehicle Security Checkpoint will be used for logistics and service vehicles, and so will need to operate 24 hours a day. Therefore, good lighting and protection from wind, sun and rain shall be provided.

The size will depend on the number of vehicles expected and the flow rates. Flow rates and detailed requirements shall be determined by the Organising Committee in conjunction with the Security agencies.

Where the Vehicle Security Checkpoint is not located close to a road junction, provision shall be made for a soft check to prevent non-accredited vehicles from reaching the search point.

3.3.2.2 Location

A Vehicle Security Checkpoint shall be located at the perimeter of the Village in a location where vehicles will enter the Village Secure Perimeter. The specific location for this facility must be agreed with local security agencies. Space will be required at the Vehicle Security Checkpoint to reject vehicles and for these vehicles to exit the Vehicle Security Checkpoint without entering the Village. A Vehicle Check Point will be required into the BOH area accessing the Logistics and Technology Centre and Main Dining.

3.3.2.3 Design Considerations

The following additional issues should be considered in the design of the Vehicle Security Checkpoint:

- For a full security screening facility, each Vehicle Check Point should contain:
 - Shelter;
 - Lighting;
 - Radios;
 - Power Generator; and
 - Portable Toilets.

3.3.3 Athlete Transport Mall

3.3.3.1 General Description

The Athlete Transport Mall is the primary transport facility for Athletes and Officials. All bus transport to and from the competition and training Games village sites will be facilitated at this location.

3.3.3.2 Location

The Athlete Transport Mall should be located adjacent to the Residential Zone to allow direct and efficient access for Athletes and Officials. It should be well connected to the primary road network linking the Village to the competition and training sites. Consideration should be given to locating the Main Dining Hall in close proximity to the Transport Mall if possible.

3.3.3.3 Design Considerations

The following additional issues should be considered in the design of the Athlete Transport Mall:

- The Transport Mall must be large enough to accommodate the movement and manoeuvring of large buses.
- Separation between buses and pedestrians is a priority and pedestrian crossings where bus movements occur should be avoided if possible.
- A Vehicle Check Point will be required at the entrance to the Athlete Transport Mall. Dependent on the security policy implemented, this may be an accreditation check.
- An ACP will be required into the Residential Zone for residents. The number of magnetometers should be considered relative to the peak demands of the residents to allow for efficient access into the Village.
- An additional gate access to the Residential Zone maybe required for special circumstances (e.g. dignitary visits, emergency vehicle access, Ceremonies loading/unloading).
- The Transport Mall must operate 24 hours a day. The Transport Mall should be able to handle approximately 1000 people per hour at peak time.
- The number of bus load zones within the Transport Mall will be based on the number of competition and training Games village sites, frequency of services and to some degree the design and layout of the terminal. It is recommended that a minimum of 20 bus load zones be accommodated within the Transport Mall.
- All areas of the Transport Mall shall be accessible to people with a disability.
- The design of the Transport Mall should ensure appropriate:
 - Street lighting;
 - Seating/benches;
 - Shelter;
 - Signage and Wayfinding; and
 - Look of the Games.

3.3.3.4 Armoury

Subject to final OC policy on this issue, an Armoury shall be located within or near to the Transport mall in order to store the guns for shooting competitors. It must be outside of the secure perimeter of the Village, but fully secured 24 hours/day. These guns will be transferred to the Shooting venue by the individual Athletes, where they will be stored for the duration of the Shooting competition programme.

3.3.4 Village Accreditation Centre

3.3.4.1 General Description

The Village Accreditation Centre is the facility where Athletes and Officials will obtain their accreditation for the Games and where luggage and personal items are security screened prior to entering the Village and being transported to their accommodation.

The following facilities will be located within the Village Accreditation Centre:

- Athlete Load Zone (external to Village secure perimeter);
- Baggage and Personnel Screening;
- Accreditation Facilities;
- CGA Delegation Registration Centre;
- Male and Female Toilets;
- Logistics Area for Baggage and Freight;
- Left Luggage Area;
- Access Control Point; and
- Athlete Load Zone (within Village secure perimeter).

3.3.4.2 Location

The Village Accreditation should be located at the perimeter of the Village so that once security screened and accredited, residents can enter directly into the Residential Zone of the Village. Ideally this facility would be located adjacent to the Logistics and Technology Centre to utilize effectively shared resources (e.g. security staff, x-ray machines, etc.).

3.3.4.3 Design Considerations

The following general issues should be considered in the design of the Village Accreditation Centre:

- Appropriate power and data should be provided for all areas of the Village Accreditation Centre.

3.3.4.4 Baggage and Personnel Screening

- The baggage and personnel screening area should be located at the main entry to the Village Accreditation Centre. The number of x-ray machines and magnetometers should be based on the peak arrival numbers. It is anticipated that a minimum of 2 x-ray machines and 2 magnetometers should be provided in this area appropriate space for queuing at the main entry to the facility should be allowed.

3.3.4.5 Accreditation Facilities

Accreditation facilities will be required within the Accreditation Centre to validate accreditation passes (if issued prior to the Games) and to resolve accreditation problems and issue accreditation passes. The following facilities should be provided:

- Approximately 5 desks will be required for Accreditation validation, with space for queuing. This area should be located after the security screening area.
- Approximately 15 desks will be required for problem resolution, with appropriate space for queuing and a small waiting area. This area should be located adjacent to the accreditation validation area but not in a location which will disrupt flows through this area.

- All accreditation facilities should have adequate power and data, and be linked to the Games Accreditation system.

3.3.4.6 CGA Delegation Registration Centre

The CGA Delegation Registration Centre is the location where all Athletes and Officials will officially be registered for the Games, and where Village Management will undertake allotment of spaces and confirm rate Card and Technology requirements. The following facilities should be accommodated within the CGA Delegation Registration Centre:

- 3 to 4 Meeting rooms capable of holding between 8 and 20 people each;
- Sport Entries Office;
- Village Allotment Office; and
- Waiting area for up to 100 Athletes and Officials.

The CGA Delegation Registration Centre should be located within the Village Accreditation Centre, but in a separate area after the completion of the security screening and accreditation process.

3.3.5 CGA Parking

3.3.5.1 General Description

The CGAs will have dedicated cars for their personal use. Parking areas are required for these cars at the Village.

3.3.5.2 Location

The CGA parking should be in close proximity to the Residential Zone and convenient to an Access Control Point. This area should be separate to the Athlete Transport mall, though could be adjacent if there is no conflict with bus movements.

3.3.5.3 Design Considerations

The following issues should be considered in the design of the CGA Parking Area:

- CGA Parking should consist of 300 numbered spaces, and should be within a fenced area.
- The car park will operate 24 hours and should have appropriate lighting.
- The CGA Parking should be of a hard surface (e.g. Bitumen).
- A VCP is required on entry to the car park and an ACP will be required for pedestrians entering the Village from this area.
- Appropriate separation between vehicles and pedestrians should be considered in the design.
- The CGA Parking area shall be wheelchair accessible.

3.3.6 Village Motor Pool

3.3.6.1 General Description

The Village Motor Pool is a support facility for all vehicles operating at the Village. The Motor Pool should incorporate the following areas:

- Vehicle holding area and parking;
- Vehicle maintenance area;

- Vehicle Cleaning (can be done off site);
- Re-fuelling area for vehicles;
- Driver lounge and break area;
- Athlete system holding area (buses); and
- Security escort vehicle area (If required).

3.3.7 Village Operations Centre

3.3.7.1 General Description

The Village Operations Centre will accommodate all management offices for the Village 'Back of House' administration facilities. The Village Operations Centre will coordinate all Village operations, administration and procedures. Communication throughout the Village will be controlled from this location. The Village Operations Centre will accommodate the following areas:

- Mayors Office;
- Village Management Work Area;
- Village Communications Centre;
- Meeting Rooms;
- Food Services Operations Office;
- Transport Operations Office; and
- Male and Female Toilets.

3.3.7.2 Location

The Village Operations Centre can be located in either the International Zone or the Residential Zone. The location of the Village Operations Centre should allow for direct and efficient access to all areas of the Village.

3.3.7.3 Mayors Office

An office for the Village Mayor shall be provided. This should be designed with space and facilities adequate for the Village Mayor to conduct one-on-one meetings and receive Guests.

3.3.7.4 Village Management Work Area

A Village Management Work Area shall be provided. The scope and layout of this room will depend on the Organising Committee Operations Plan. From previous experience, this contains:

- A reception area;
- Workspace providing hot desks for Functional Area managers;
- A resources area; and
- A Village Venue Managers Office.

3.3.7.5 Village Communications Centre

A Village Communications Centre (VCC) shall be provided. This is the communications centre for the venue, where all radio traffic is managed. It shall be a separate room located next to, but at least close to, the Village Management Work Area. The room should have acoustic privacy and provision for communications equipment to be easily installed. This includes power and cable pathways.

The scope and layout of this room will depend on the Organising Committee Operations Plan.

3.3.7.6 Meeting Room

Two meeting rooms shall be provided for use by the functional managers at the venue and for general venue operations briefings. One meeting room shall be provided for up to 10 people, and one shall be provided for up to 20 people.

3.3.7.7 Food Services Operations Office

Office accommodation and facilities shall be provided. This shall include be a work area for the Food Services Operations staff, preferably an open plan office. Access to a meeting/briefing area is required, which can be shared.

3.3.7.8 Transport Operations Office

Office accommodation and facilities shall be provided. This shall include be a work area for the Transport Operations staff, preferably an open plan office. Access to a meeting/briefing area is required, which can be shared.

3.3.8 Security Command Centre

3.3.8.1 General Description

The Security Command Centre will be the focus for security operations within the Village. The Security Command Centre will generally accommodate all security personnel required within the Village (Police, Special Services etc.) and coordinate their activities within the Village. Operations undertaken by Security Personnel will include:

- Maintaining the Secure Perimeter of the Village;
- Security screening at VCPs and ACPs;
- Security Screening of Goods Deliveries at Logistics Centre;
- Asset protection;
- Bomb disposal and major incident coordination; and
- Law enforcement within the Village.

The following areas/spaces should be provided within the Security Command Centre:

- Security Commander Office;
- Security Work Area;
- Briefing room (could potentially utilise Chefs Meeting Hall if conveniently located);
- CCTV Monitors;
- Staff Break Area;
- Communication Command Desk;
- Armoury Vault (if required);
- Holding Cells (if required); and
- Parking space for vehicles, bikes, etc.

3.3.8.2 *Location*

The Security Command Centre should be located in a secluded area of the Residential Zone, or within the Operational Zone. If possible, this facility should be located in close proximity to the Village Management Centre.

3.3.8.3 *Design Considerations*

The following additional issues should be considered in the design of the Security Command Centre:

- The location and layout of the Security Command Centre should facilitate efficient and direct access to all zones within the Village.
- The size and layout of the Security Command Centre will depend on number and type of security personnel in the Village. Minimum staff requirements will be approximately 40 people per shift and can be as many as 100 per shift depending on law enforcement needs.
- Consideration should be given to co-locating other emergency services in this area, including Fire Services vehicles etc. This may increase the space requirements.

3.3.9 *Logistics and Technology Centre*

3.3.9.1 *General Description*

The Logistics and Technology Centre is the key facility accommodating 'back of house' Village operations. These operations will include the delivery and storage of goods, material security screening, Village maintenance and technology operations and storage. The following facilities will be located in this area:

Logistics Centre

An efficient, effective and secure system for the receipt, storage distribution, collection and issue of goods shall be provided. This shall include, but not necessarily be limited to:

- A Logistics Centre including:
 - Vehicle Screening Area;
 - Vehicle Staging Area and Loading Dock(s);
 - Logistics Warehouse (Equipment, Catering, Housekeeping Supplies, CGA Freight and FF&E);
 - An office for the Logistics staff and contractors;
 - Storage for material handling equipment and vehicles;
 - Access to toilets. These could be shared with other BOH areas;
 - Dedicated contractor storage and possible workshop/repair facilities; and
 - Satellite storage if necessary.

This area shall be securely fenced, level and trafficable in wet weather by large vehicles.

Adequate, efficient and conveniently located storage facilities shall be provided for all material and equipment, including technical equipment required for the Commonwealth Games, in addition to that mentioned in other sections. This includes both general and dedicated storage. Temporary storage of Commonwealth Games equipment should be provided, from prior to their first use until after the Games.

The extent of Logistics facilities at the Games Village will depend on the Organising Committee policy in relation to:

- Centralised or localised storage and distribution;
- Security requirements for pre-checking or venue checking of deliveries; and
- Movement of goods whilst the Games Village is occupied.

Technology Centre

A Technology Centre shall be provided to accommodate key operational and storage areas required for the effective operation of the Games Village. This centre will include:

- Technology Management Office
- Technology Work Area
- Communications Equipment Room
- Technology Warehouse (Storage for Computers, Faxes, Copiers, etc.);

3.3.9.2 *Location*

The Logistics and Technology Centre should be located at the perimeter of the Operational Zone of the Village and well connected to the adjacent primary road network. Within the Village this zone should be linked to 'back of house' areas for the major facilities in the International and Residential Zones, including the Main Dining Hall and Commercial Zone.

3.3.9.3 *Design Considerations*

The following additional issues should be considered in the design of the Logistics and Technology Centre:

- The Logistics Centre for a Village operates throughout the night and can generate significant noise and disturbance. It should not therefore be located in close proximity to the Residential Accommodation.
- Loading areas should be clearly marked and appropriately sized for large vehicle manoeuvring for large vehicles.
- All items entering the Village will need to be security screened and therefore appropriate space is required at the Vehicle Check Point. A specific x-ray machine will be required within this VCP suitable for the screening of goods.
- Pedestrian and vehicle movements should be kept separate within the Logistics and Technology Centre.
- Ground surfaces should be solid and where needed reinforced to accommodate large vehicles.

3.3.10 *Cleaning and Waste Compound*

An efficient and effective system shall be provided for the collection, storage and removal of waste, including recycling. This shall include:

- A Waste Compound including:
 - An office for the waste management staff and contractors (can be shared with cleaning);
 - Storage for waste and recycling containers, including a compactor if required;
 - Storage for equipment and vehicles; and
 - A Vehicle Staging Area to accommodate large vehicles. This could be shared with other compounds.

- Access to toilets. These could be shared with other compounds; and
- Waste bins distributed around the venue.

The compound shall be securely fenced, level and trafficable in wet weather by large vehicles.

The Waste Management system shall include the following features:

- All collection and storage provisions should be protected from sun and rain;
- Collection bins should be located in convenient and visible positions, but should not interfere with circulation, and should be easy to empty and clean;
- Storage should provide hygienic and easily cleaned conditions with refrigeration if necessary;
- Storage should make efficient use of space, such as the use of compacters;
- Recycling containers should be colour coded and clearly identified on all visible sides;
- The system should allow for the efficient and effective collection of waste that is not put into collection containers, such as garbage chutes; and
- Recycling provisions should be in accordance with the Environmental Strategy developed for the project. Due consideration should be paid to current Delhi government programs in this area.

The extent of Waste Management facilities at the Games Village will depend on the Organising Committee policy.

3.3.11 Workforce Centre

3.3.11.1 General Description

A Workforce Centre should be provided within the Operational Zone of the Village. This facility will include staff check in and check-out functions (primarily for volunteers) and an information point for all staff issues within the Village. The Workforce Centre should consist of:

- Workforce Check-In Facility;
- Workforce Office;
- Workforce Briefing; and
- Workforce Change Rooms.

The size of the Workforce Centre will depend on the number of workforce per shift and the time control mechanism put in place by management.

3.3.11.2 Location

The Workforce Centre should be at or near the Workforce Entrance to the Village. The location of the Workforce Centre should easily facilitate Workforce movement from this location to other areas of the Village. It should also be convenient to public transport, as the majority of Workforce will travel to the Village utilizing this mode of transport.

3.3.11.3 Workforce Check-In

Suitable accommodation, facilities, services and equipment shall be provided to allow all staff, volunteers and contractors, to check-in at the start of the shift. This shall be located close to the workforce entry. Cloak Room facilities shall be provided at the Workforce Check-In area

3.3.11.4 Workforce Office

Suitable accommodation, facilities, services and equipment shall be provided for the management and administration of the workforce at the venue. This shall be located as part of, or close to, the Workforce Check-In.

3.3.11.5 Workforce Briefing

Suitable accommodation, facilities, services and equipment shall be provided to allow all staff, volunteers and contractors, to be briefed at the start of the shift, or at other necessary times. This shall be located in the Back of House area, accessible by all staff.

The area shall contain a room, preferably with a counter, to store and distribute equipment to Event Services staff.

3.3.11.6 Workforce Change Rooms

A minimum of two change rooms shall be provided. The size and configuration of each change room should accommodate up to 25 people at any one time. Facilities shall include:

- Seating or benching; and
- Showers, toilets and hand basins.

3.3.11.7 Workforce Satellite Break Areas

Workforce lounges shall be provided for Workforce to rest. These should be located in each zone of the Village and provide accommodation for 40-50 people at any one time. This shall provide a comfortable atmosphere with facilities for light snacks and tea/coffee to be served.

3.3.12 Workforce Dining Hall

3.3.12.1 General Description

All Workforce in the Village are entitled to eat meals at the Workforce Dining Hall. The facility should cater for 300 - 500 people at any one time.

In addition to the Workforce Dining Hall, additional Workforce 'break' areas should be developed throughout the Village. These areas should be fitted with vending machines, tables and chairs.

3.3.12.2 Location

Ideally the Workforce Dining Hall would be situated adjacent to the Main Dining Hall to share facilities and infrastructure and reduce operational costs. However, the design of the facility shall ensure that access to the Workforce Dining Hall is through the International Zone, as not all Workforce will be accredited with access to the Residential Zone.

3.3.12.3 Design Considerations

The following additional issues should be considered in the design of the Workforce Dining Hall:

- If food preparation areas are shared with the Main Dining Hall, serveries will be required for hot and cold food rather than cooking stations.
- Toilets should be provided at the Workforce Dining Hall.

3.3.13 Housekeeping

3.3.13.1 General Description

Housekeeping will be provided to all residential buildings, public areas, and recreational and commercial facilities. A central Housekeeping facility should be provided within the Operational Zone. This facility should stock extra pillows, blankets, linen and towels. These items can be requested at Resident Centres. Housekeeping facilities will consist of:

- Central Housekeeping Facility; and
- Satellite Housekeeping Storage (at Resident Centres).

3.3.13.2 Location

The Central Housekeeping facility should be ideally located with Village Operations Centre. Satellite storage areas and smaller offices should be located within the Residential Buildings and / or at the Resident Centres.

3.3.13.3 Design Considerations

The following additional issues should be considered in the design of the Central Housekeeping Facility:

- Adequate facilities shall be provided for dry storage of all housekeeping items; and
- The Central Housekeeping Facility should be well connected to Residential Units, and located in a BOH area in close proximity to the Logistics Warehouse. It will also require large vehicle access.

SECTION 4

4 CONCEPT PLANNING

4.1 BACKGROUND

To assist the development of the Brief and help Design Consultants understand the requirements, a concept planning exercise has been carried out.

The purpose of this exercise is to identify opportunities and constraints and ensure that the key requirements are achievable. A Commonwealth Games Planning Principles drawing has been produced for the venue, showing the principal zones and areas. In addition, a Concept Master Plan has been developed that combines these principles and shows a benchmark Games Overlay for the venue.

The Planning Principles and the Concept Master Plan are described below and the drawings included in Appendix B.

4.2 PLANNING PRINCIPLES & CONCEPT MASTER PLAN

4.2.1 General

The whole of the site, including internal sites and any external areas related to the Commonwealth Games, is known as the precinct.

This section describes how the planning principles could be applied to the precinct to meet the Commonwealth Games requirements.

The Concept Master Plan demonstrates how the Games Village can be arranged in an efficient and effective manner to meet the key Games requirements and based on the planning principles.

The Concept Master Plan sets a benchmark to assist the Design Consultants understand the Brief. It shows a suggested best arrangement of the main elements, based on the criteria set out in the Brief. However, the Design Consultants shall produce and take responsibility for their own design.

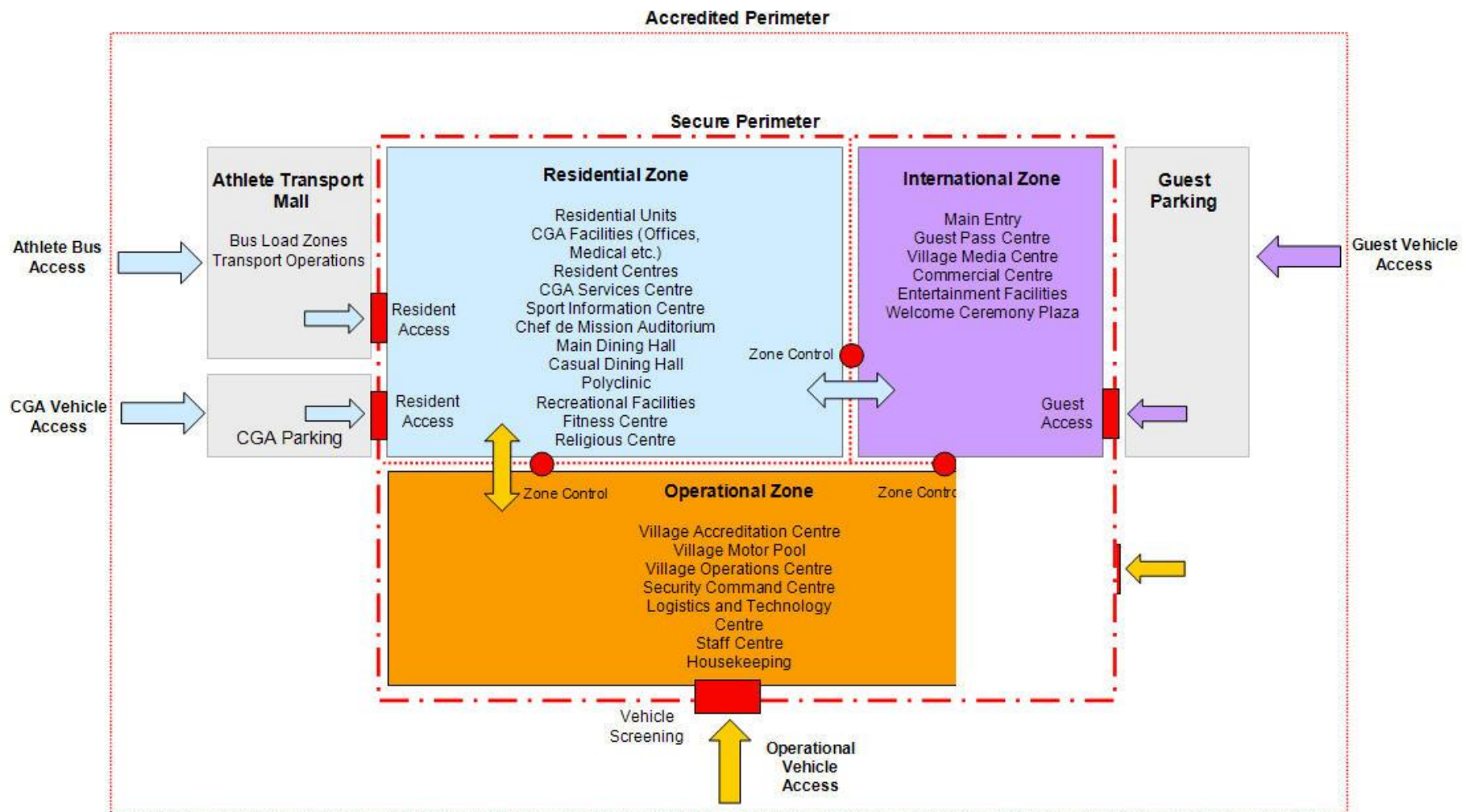
Alternative solutions may be more viable when a detailed study of the site is undertaken and more information is known on the redevelopment and the key Organising Committee policies, such as accreditation, security and transport, are developed. However, the design must meet the requirements described in the Brief and the Design Consultants must be able to demonstrate why they provide a better solution than the benchmark.

4.2.2 Planning Principles

The Planning Principles discussed in this section are general planning and design requirements. Detailed requirements are described elsewhere in the Brief. Any discrepancy should be raised. The planning principles are:

- Games Village Zoning;
- Urban Design;
- Site Boundaries;
- The Secure Perimeter;
- Adjacent Sites;
- Separation of Constituent Groups; and
- Site Access.

The following Village planning principles diagram has formed the basis for the Concept Master Plan, as applied to the specific nominated site for the Delhi 2010 Commonwealth Games:





4.2.3 Games Village Zoning

The Games Village must be developed into three distinct zones. These are:

- Residential Zone
- International Zone
- Operational Zone

Each of these zones will require separate and discreet access, and will contain distinct facilities which are outlined in Section 4: Functional Requirements. The concept master plan identifies a potential layout for these facilities which reflects the Brief requirements and also reflects the constraints and opportunities of the Games Village site, particularly with respect to transport issues.

4.2.4 Urban Design

Urban Design Elements should be designed to best facilitate the functionality and image of the Games Village. This shall include:

- Additional roadways to facilitate the required access and circulation for vehicles into the site;
- Landscaping as required to enhance the image of the Village and Village entries, and in particular to obscure any utilities, such as the nominated power, sewerage and water treatment facilities which are nominated on the site, and may well be close to major entry points on the site;
- Street lighting and lighting of public spaces throughout the Village to provide a safe environment, considering the utilisation of the site at all times. This lighting should consider both functional and aesthetic issues, with some feature lighting to be included to enhance the visual experience of the Games Village; and
- The entries to the Village should be designed to create appropriate 'gateways' to the Village site, through the use of entry structures, landscaping, etc.

4.2.5 Site Boundaries

The site boundaries are based on interpretation of the Survey Plan, issued by the Agency. The boundaries are not fully defined on this plan and, therefore, for the Concept Master Plan, assumptions have been made using a combination of the boundary walls and fence lines shown on that drawing. The site boundaries must be confirmed by the Agency.

4.2.6 Secure Perimeter

The security of the Athletes and Team Officials resident in the Games Village is a priority, and as such the Games Village shall be secured from unauthorised access by creating a secure perimeter. The location and extent of the secure perimeter will depend on the security policy agreed between the Organising Committee and the Police.

The Concept Master Plan identifies the potential security zones around the Games Village following discussions with the security agencies involved. These security zones include:

- An outer perimeter fence which forms the 'accredited zone', with all vehicles and pedestrians subject to an accreditation/permit check to enter this zone.
- An inner zone which forms the secure perimeter of the Village, with all vehicles and pedestrians entering this zone subject to a full security check.
- A number of Vehicle and pedestrian Checkpoints at key access points around the perimeter of the Games Village.

It should be noted that the actual location and extent of these security elements are subject to finalisation of the Games Security policy for the Village.

4.2.7 Adjacent Sites

4.2.7.1 Akshardham Temple

The adjacent Akshardham Temple site offers opportunities and challenges in the development and operation of the Games Village. The interface with the Akshardham Temple is a key issue in the development of the concept design. In particular, the following issues should be considered:

- The opportunity to capture vistas of the Temple Dome structure from areas within the Games Village should be strongly considered to enhance the experience for the residents and visitors.
- Maintaining security within the Games Village with respect to Temple occupants/residents and vehicle movements occurring into and within the Temple complex.
- Traffic management and access control into the temple, which may generate conflict with Village access requirements.
- Potential utilisation of some areas within the temple boundary for use as operational areas and/or buffer zones, as identified in the concept master plan.

4.2.7.2 Railway

The adjacent railway abuts the Village precinct. Consideration should be given to the following:

- Ensuring sound attenuation is achieved to ensure noise mitigation into the Village site. Sound barriers of an appropriate design should be developed; and
- Ensuring that security is maintained from the elevated railway and adjacent lands into the Village site.

4.2.7.3 Noida Link Road

The Noida Link Road will likely provide for some key access routes into the Games Village. As this is a major arterial road for Delhi, careful traffic management will be required in order to facilitate the required Village vehicle movements, and to ensure safe vehicle access for all accredited vehicles. Some consideration should be given to diverting traffic during Games time along this road to ensure there are no compromises to access during the Games.

4.2.7.4 National Highway 24

National Highway 24 forms the south boundary of the Games Village site, and it is proposed that all Athlete buses accessing the Games Village will enter from this road. It is also proposed that a flyover will be constructed in order to facilitate bus movements in and out of the Transport Mall.

4.2.7.5 Internal Roads

Where internal roads may have an impact on the Village environment (particularly with respect to noise disturbance to the residential zone) appropriate treatment, including all necessary sound attenuation, must be undertaken. This will particularly be an issue between the Operational Zone and Residential Zones.

4.2.7.6 Site Utilities

It is noted that several site utilities have been defined for the Games Village precinct, though the final location of these facilities is to be determined by the Agency. These include a Water Treatment Plant, Sewerage Treatment Plant and Power Station. The concept master plan shall ensure that adequate

access is provided to these facilities, outside of the secure perimeter of the Games Village, but within the accredited zone. Adequate roads and pedestrian pathways shall be provided which will not compromise the Games Village operations. In addition, it must be ensured that these facilities do not create adverse environmental conditions for any residents or guests of the Village, including noise, vibration and/or odours. Appropriate visual screening of these facilities will be required if they are located adjacent to Games Village entry points or where residents and guests may potentially view these facilities.

4.2.7.7 Proposed Police Station

A site of 1ha has been requested for a Police Station within the Games Village precinct, though the final location of this facility is to be determined by the Agency. A potential location has been identified. Whilst it is possible that this facility could be utilised for security operations during the Games, it should be noted that it is unlikely that public access would be available to the facility during Games time as it would be located within the accredited zone of the Village, and as such only accredited constituents will have access to this area.

4.2.7.8 Proposed Hospital

As requested, a site has been nominated for a 50 bed hospital within the Games Village precinct, though the final location of this facility is to be determined by the Agency. It should be noted that the location identified for this facility will not be suitable for use as the Polyclinic, which must be developed within the Residential Zone of the Village. This facility will, however, be located within the accredited zone of the Village, and as such it is unlikely that public access would be available to the facility during Games time. Potentially, this facility could be utilised for Games Family medical services generally, subject to operational issues/considerations

4.2.8 Separation of Constituent Groups

Separation of Athletes and Officials from all other guests and constituents within the Village precinct is a priority to ensure security and privacy for the residents.

This is directly linked to the zoning plan of the Village as identified in the concept master plan, which identified the key functional relationships, and the location of facilities required within each of the distinct zones of the Village. Maintaining these distinct zones is a priority through the development of the master plan.

4.2.9 Site Access

4.2.9.1 General

Several key access points will be required into the Games Village, including vehicle access for all constituents and logistics movements. These access points must be designed to adequately accommodate these vehicle movements in an efficient and effective manner. As these entry points will generally be located off the major arterial roads at the site perimeter, any road infrastructure improvements, flyovers and/or signalling which may be required must be accommodated. The designer shall undertake all required transport studies to validate and demonstrate the movement of vehicles in and out of the Games Village for all constituents.

4.2.9.2 Athletes and Team Officials

Athletes and Team Officials will access the Games Village by accredited bus and designated CGA vehicles. A Transport Terminal and dedicated parking area will be required, and these facilities are nominated on the concept master plan in an area directly accessing the residential Zone of the Village. This location has been nominated based on providing the most direct access to the competition and training venues and not conflicting with other vehicle movements around the Village. It should be

noted that based on this location, some sound attenuation along the access road may be required to mitigate noise disturbance to the Village residents.

It is understood that a new flyover is proposed to connect the access road to the Transport Mall to the N27 major arterial road. This should be designed in such a way as to facilitate direct access for all Athlete buses on to the major routes to competition and training venues, and avoiding any potential conflicts at this intersection.

4.2.9.3 Games Family/Media/Guest Access

All other guests to the Village will arrive by the main entry. This is located off the Noida Link Road, in a separate area to the Residential Zone. All guests will access the International Zone of the Games Village, through a security check point in this location, as defined in the concept master plan.

4.2.9.4 Operations

An Operations access point must be provided for all logistics and service vehicles entering the Games Village. This should be a separate entry to the main entry and the Athletes and Team Officials entry. This entry will be particularly active out of hours and as such should be located discreet from the Residential Zone so as not to create noise disturbance to the residents. All vehicles entering the Village at this point will be subject to security screening. Space will also be required to turn large vehicles at this point for exiting the Village.

4.2.9.5 Games Workforce

The majority of Games Workforce will arrive at the Village by Public Transport. Based on the proposed development of a Metro station in close proximity to the Games Village, it is assumed the majority of Games Workforce will arrive at this location, and as such a walking route should be provided into the Village from the metro to a Pedestrian access point. In addition a bus stop/terminal should be provided for Games Workforce, with a pedestrian walking route to their entry point.

SECTION 5

5 BUILDING SERVICES

This section covers the minimum requirements for the building technical, engineering and services provisions at the various zones throughout the village site. Designers may include additional proposals for development of this site than stipulated in this document.

5.1 GENERAL REQUIREMENTS

The designer shall provide infrastructure and building services that meet the technical needs of the precinct and all its users. Particular attention needs to be paid to the unique and differing requirements for each of the Games Village Zones – International, Residential and Operational

Building services include, but are not necessarily be limited to, the following:

- Potable Water;
- Sewerage and sanitary plumbing;
- Storm water drainage;
- Gas;
- Lighting;
- Power;
- Communications;
- Security;
- HVAC systems;
- Fire and life safety;
- Television Production and Distribution System; and
- Media cabling (both permanent and temporary).

5.1.1 Connection to Utilities

Reliable, efficient and effective systems shall be provided to connect the various village zones within the precinct to service connection points from public utilities infrastructure or existing site infrastructure. These shall include all charges and due consultation and coordination with the following:

- Public and private utility service providers and suppliers;
- Private or public holders of land traversed in gaining access to the public utilities; and
- Government Authorities and statutory bodies.

Services available for connection to the village zones or village precinct, shall be identified and confirmed with the authority regarding existing capacity, including the ability to supply and service projected demands, identification of incoming infrastructure access corridors, both existing or proposed. Connections shall be made to these services, including any additional public utilities that are required for the precinct.

The utilities should include but not be limited to:

- Gas supply;

- Water supply;
- Sewerage drainage;
- Storm water drainage;
- Electrical supply;
- Public telecommunications; and
- Private telecommunications, cable/satellite.

5.1.2 Services Reticulation

A reliable, efficient and effective system for the reticulation, delivery and control of all building services, both within and external to the buildings, shall be provided for all permanent services throughout the village precinct. It is recommended that a similar approach also be adopted for temporary services.

Water and Sewer Drainage reticulation services shall include:

- Sewer and storm water drainage networks;
- Potable water networks; and
- Fire services, including hydrants and hose reels as a minimum.

The electrical reticulation system shall provide capacity for additional cables to increase capacity and/or provide redundancy for use during the Games period and include.

- Power;
- General voice and data communications;
- Dedicated voice and data communications; and
- Broadcast cabling.

In order to facilitate the requirements of the services reticulation, additional infrastructure shall be provided as follows:

- A network of pits/outlets containing power and communication outlets located at convenient locations throughout the precinct;
- In particular, a comprehensive conduit system between pits for the reticulation of:
 - Power, voice and data from Technology spaces to and between Media spaces, including the media tribune; and
 - Reticulation of Broadcast Cabling from Broadcast Compound to Broadcast areas and to media centres.

5.1.3 Coordination and Access

Adequate access for commissioning, inspection, carrying out preventative maintenance and repairs shall be provided for all services. Sufficient clearances shall be provided in plant rooms to facilitate major maintenance procedures such as equipment replacement, pump overhauls, strainer servicing, etc. without significant dismantling of piping or other equipment, this is particularly pertinent for the Games period where it is paramount that disruption be kept to a minimum.

5.1.4 Sensitivity to Architectural Features and Adjacent Uses

All services shall be installed in an unobtrusive manner that does not detract from the architectural appearance of buildings, nor reduce the amenity of the facilities or adjacent areas. This requirement

shall extend to all aspects of the installation including, but not necessary limited to, location, route, fixing spacing, noise, vibration, size, colour, shape and finish.

5.1.5 Flexibility in Design

Designers should consider flexibility in the building services and infrastructure designs, particularly where facilities have a legacy brief that will change the use of a building in post Games mode. The thought process within the design shall enable a reasonable change of use to be achieved, for various event types, in all areas without extensive modifications to the major components of the services infrastructure.

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5.2 STRUCTURAL

5.2.1 General

All buildings, including temporary structures within the Games Village, shall comply with the requirements of the relevant international best practice in respect of geometry, strength, deflections and vibrations. Structures shall be capable of withstanding the anticipated loadings during the Games, including live, imposed dead, wind, earthquake events, rain and other forces in accordance with the relevant standards, codes of practice and building regulations. Loadings shall include allowances for temporary fixings and rigging.

New building floors should be of suitable tolerance and surface finish to permit movement, installation and maintenance of the installed equipment. External walls shall provide a durable and weatherproof enclosure. All new internal supporting structure and framing shall be suitably robust and capable of supporting both the current and future requirements of any building or facility. Fire exits within buildings of both a permanent and or temporary nature shall be provided as required by the relevant standards. All doors shall have adequate fire rating where required.

It is recommended that roofs be pitched wherever possible and clad with water resistant robust material designed to be maintenance free over the life of the structure. All roof drainage shall be directed to the storm water drainage system via a system of downpipes and drainage.

The scope of structural works includes, but is not limited to:

- Geotechnical site and foundation investigations;
- Site clearance including general demolition and other works necessitated by existing use of the site; and
- Footings, piles, structures, framing, buildings, amenities, plant rooms, temporary structures, etc.

5.2.2 Structural Loading

The buildings and structures within the village precinct shall be designed for specific loads, including loads for operation and maintenance conditions, but not less than the following:

Location	If the application is of a temporary nature then the design shall meet the following criteria	If the application is of a permanent nature then the design should meet the following criteria
Office Areas	2.0 kPa	3.0 kPa
Plant Rooms	5 kPa including plant weight loading	5 kPa including plant weight loading
Storage Rooms	3 kPa	5 kPa
Public Areas, Seating, Kitchens, Merchandise	7.5 kPa	7.5 kPa
Walkways and Staircases	4.0 kPa	4.0 kPa

It is recommended that floors of buildings shall be designed for the following minimum superimposed dead loads. Higher loads shall be used where required for tiled floors or concentrations of services:

Location	If the application is of a temporary nature then the design shall meet the following criteria	If the application is of a permanent nature then the design should meet the following criteria
Floor Finishes	0.4 kPa	0.5 kPa
Ceilings and Services	0.4 kPa	0.5 kPa
Partitions	0.5 kPa	1.0 kPa

Design Consultants shall take particular attention to minimise the risk of progressive collapse or disproportionate collapse due to unforeseen incidents. Where support and access structures are trafficable, including bridges, walkways, ramps and the like, design for vehicle access loads shall comply with the relevant requirements of IS Standard. It is recommended in all legacy applications a minimum fifty (50) year return period value be used for environmental loading.

5.2.3 Seismic Loads

All buildings and structures within the village precinct shall be designed to withstand seismic loads. For the evaluation of earthquake forces, all buildings, pools and temporary structures may be assumed to be of medium importance with medium consequence for loss of human life.

5.2.4 Crowd Loads

Internal partitions, barriers, guard rails, handrails and balustrades shall be designed for loads imposed by crowd movement.

5.2.5 Foundations

It is recommended that geotechnical investigations should be carried out by reputable companies in this field. Footings should be designed in accordance with the recommendations of the geotechnical investigation reports for the site and the relevant IS Standards using Limit State analysis and the application of accepted principles of soil mechanics to meet following basic requirements of:

- Strength requirements of IS standards.
- Adequate safety factors against failure in overturning, sliding or bearing.
- Soil bearing capabilities and earth pressures.
- Total and differential settlements within allowable limits.
- Equipment, structure and environmental loads.
- Dynamic effects of machines.

5.2.6 Concrete

Structural concrete should be of appropriate grade and mix design to achieve design strength and, for the legacy, durability requirements. Concrete should have surface finishes suitable for the location and intended purpose of the structures, particularly where exposed to heavy or frequent loading or high pedestrian traffic. It is recommended that all highly visible surfaces have a high quality finish.

The concrete grades specified below for cylinder test specimens shall be taken as a minimum requirement.

Location	If the application is of a temporary nature then the design shall meet the following criteria	If the application is of a permanent nature then the design should meet the following criteria
Footings and in ground concrete	25 MPa	30 MPa
Superstructure works	25 MPa	30 MPa
Blinding concrete	15 MPa	15 MPa
Pavements or floors subject to vehicular traffic	25 MPa	30 MPa

Where concrete is used as part for pool construction, it is recommended that all concrete be of a minimum of 400kg/m³ of cementitious material, maximum of 20% replacement of cement by flash, and water to cementitious material ratio be limited to 0.40.

5.2.7 Reinforcement

Concrete cover over reinforcement shall be as specified below and taken as minimum requirements for both temporary and legacy associated facilities, buildings and structures. These figures do not take into account additional fire rating requirements of concrete structures, for which the consultant should refer to the appropriate IS standard. Where required for earthing purposes, steel reinforcement shall be interconnected to provide electrical continuity.

Cover (mm)			
Location	Temporary or Permanent Interior	Temporary or Permanent - Exterior above ground	Temporary or Permanent - Exterior In ground
Footings and piles cast against ground	-	-	75
Top and side cover to footings, pedestals, plinths, cast against formwork	50	50	50
Bottom cover to slabs cast against membrane	-	-	50
Bottom cover to footings cast on 50mm concrete blinding	-	-	50
Beams, slabs	20	30	-
Walls	20	30	-
Columns (to ties)	30	40	-

For the pool facility, we recommend that the stress in the reinforcement be limited as determined by appropriate water retaining structures standards, Indian or suitable British standard. It is recommended that the reinforcement flexural tensile stress be limited to 120MPa, unless a higher value is allowed by the appropriate code.

5.2.8 Joints

All construction joints shall be designed watertight and allow for any movement due to thermal, shrinkage and creep of the concrete, and ground movements due to consolidation and moisture variations. For the pool facility, it is recommend that the joints be full strength construction joints or flexible joints with a water stop (central or rearguard) to ensure complete water tightness.

5.2.9 Structural Steel

The steel structure is to be competently designed and constructed by appropriately qualified and experienced personnel. The steel is to be protected with a system which maintains good appearance and protects against the negative effects of corrosion.

5.2.10 Cladding

External and internal wall and roof claddings used in either temporary or permanent buildings or structures shall be robust, durable and certified in accordance with relevant IS standards according to their appropriate materials category.

5.2.11 Masonry

All masonry materials used in construction, regardless of their use in temporary or legacy structures, shall provide sufficient structural capacity for the applied loads. The products shall be robust, durable and certified in accordance with relevant IS standards according to their appropriate materials category.

5.2.12 Ladders, Platforms, Stairs and Hand Rails

Hand rails shall be constructed from a suitable robust, durable material with sufficient strength and bearing capacity for the design application.

5.2.13 Temporary Structures

All structures within the village precinct, regardless of whether they are of a temporary or permanent nature, shall comply with the relevant standards and codes and be fit for purpose. Temporary structures may be prefabricated structures manufactured by specialist organisations, supported on suitable temporary footings and/or piles. All temporary structures shall be designed and constructed so that on being dismantled the area can be returned to its previous function and geometry.

Examples of typical temporary structures are facilities itemised but not limited to:

- Ramps and walkways;
- Bridges (suspension or fixed);
- Tents and marquees;
- Cabins or other portable accommodation;
- Storage and plant areas;
- Spectator stands and seating; and
- Amenities and concessions.

5.3 CIVIL

5.3.1 General

The works shall be designed to be fit for purpose for all stages of the installation lifespan (including construction, pre-Games set up, activities undertaken during the Games and post-Games operations and maintenance).

The civil works package includes, but is not limited to roads, pathways, earthworks and site storm water drainage. Roads and hardstand areas are to be designed to drain surface water from the site in an expedite fashion without surface retention or ponding that will affect the flow of either pedestrian or vehicular traffic. For portions of the site retained as a legacy element, it is recommended the drainage

system be designed for all weather season events and not just those that are encountered during the Games period.

5.3.2 Earthworks

Earthworks shall include all excavation and filling required to complete the works within the three village precinct zones. It is recommended that cut and fill excavation should be balanced for the works to avoid site stockpiling. Where this is not practically achievable, consideration must be made for economic reuse or disposal of the material.

Earthworks batters used or incorporated within the civil works shall be sloped to ensure long term stability of the material and to prevent any collapse of material or foundations. Erosion protection shall be provided in all cases, including batters, drainage outlets and landscaped areas.

5.3.3 Roads and Hardstand Areas

All roads and hard standings are to be designed as fit for purpose with consideration of traffic loadings and weather conditions. It is recommended that they are sealed. Roads and hardstand areas shall be designed for an adequate lifespan with consideration of all the loadings which are to be imposed both during and after the Games events. All roads and hardstand areas shall provide for the safe movement of pedestrians.

The design of all permanent roads within the village shall consider emergency access during operations. The proposed road system shall be integrated with the existing road network and will be subject to approval by the local authorities.

All permanent access roads shall comply with, but not necessarily be limited to, the following:

- Be trafficable in both directions and
- Allow for construction, Games set up operations, future operation and maintenance.
- Road lane numbers and intersection layouts are to be based on appropriate traffic studies and forecasts and must be designed to allow for free flowing safe movement of traffic.
- Road and hard standing areas are to be designed with adequate slope to direct surface water runoff to the drainage system.
- The nominal cross fall on road pavements shall be 3%.
- The minimum grade on hard standing areas shall be 0.5%.
- Flatter grades on hard stands will be considered in conjunction with the use of permeable pavement systems.
- All roads and hardstand areas shall provide for the safe movement of pedestrians.
- All external and significant internal roads are to be designed for a minimum traffic loading of 5×10^6 Equivalent Standard Axles (ESAs).
- All other internal roads are to be designed for a minimum traffic loading of 2×10^5 ESAs.
- Carparks and hardstand areas are to be designed for a minimum traffic loading of 5×10^4 ESAs.

Equivalent Standard Axles are based on the following loadings:

Single axle with single tyres	53kN
Single axle with dual tyres	80kN
Tandem axle with single tyres	90kN
Tandem axle with dual tyres	135kN
Tri-axle with dual tyres	181kN

Where necessary, consultants shall incorporate geo textiles, stabilised materials or other appropriate treatments to provide an adequate sub grade for all pavements and hard standing areas.

5.3.4 Kerbs

Concrete kerbs or edge treatments are to be provided on all hard standings and roads.

5.3.5 Footpaths

Footpaths are to be provided for the safe and efficient movement of pedestrians during and after the Games. Appropriate widths of footpaths shall be determined through pedestrian studies.

5.3.6 Line Marking

Appropriate line marking is to be provided to assist in the safe and efficient movement of vehicles and pedestrians.

5.3.7 Signposting

Appropriate signposting is to be provided to assist in the safe and efficient movement of vehicles and pedestrians. Signposting shall be standardised throughout all Games venues and it is recommended that this be coordinated across all venue sites / precincts to ensure a standardised Games “look”.

5.3.8 Safety Barriers and Road Furniture

Vehicular and pedestrian safety barriers are to be provided in accordance with local design standards. Vehicular barriers may be of steel or concrete capable of withstanding vehicular impact at village precinct speeds. Road furniture is to be provided as required to assist the safe and efficient access of pedestrians, vehicles and bicycles.

5.3.9 Services Corridor

It is recommended that designers incorporate a services corridor within the road alignments for the installation of authority or private infrastructure services. These services may be of a permanent or temporary nature and designers must liaise with their respective counterparts when planning the pavement network. It is recommended that corridors be located clear of hard stand areas to avoid roadway disturbance during maintenance or alteration works.

5.3.10 Surface Water Drainage

Storm water runoff shall be collected in a surface water drainage system which effectively drains the site pavements and all associated buildings within the village precinct. Drainage systems shall be discharged into the nearest existing surface water drainage watercourse or external authority surface water drainage system.

Drainage systems shall be provided with access pits for cleaning and maintenance. All drains and pits shall be designed to withstand vehicular loadings in both roadways and landscaped areas. The design of the final drainage system shall be fully coordinated with any existing or proposed in ground services. Where new drainage systems connect to existing drainage networks, analysis of the carrying capacity of the existing system is recommended to confirm the entire drainage network has the capacity to accept new total peak loadings during a storm event.

Flooding issues shall be considered and appropriate mitigation items incorporated in the design.

On no account shall over land flow paths for storm water impede pedestrian or vehicular access to the village site during the Games. Open perimeter drains shall be designed to prevent soil erosion, including provision of lining where necessary.

5.3.11 Drainage Pipework

Pipes used for carrying storm water drainage water shall be fit for purpose and in manufactured in accordance with the relevant IS standards. Joints shall be sealed in accordance with manufacture's instructions. The design must assess all proposed loadings on the pipe work and all other drainage components (including but not limited to covers, headwalls, clean out structures, and water quality devices) and appropriate strength materials are to be used to withstand these loadings.

5.4 ELECTRICAL POWER

5.4.1 General

A reliable, safe and secure power system with minimal disruption to the working of the Village during external and internal disturbances of the power supply shall be provided for the Commonwealth Games.

The electrical systems shall be designed using the latest technology to provide an energy efficient system that is reliable and maintainable over the design life of the equipment, meeting the functional requirements of the village in Games mode. Where the existing power infrastructure cannot support the projected power requirements for the Commonwealth Games, it shall be upgraded. This may be done utilising the permanent infrastructure or augmenting with temporary systems where required. For the legacy, it is recommended that, as a minimum, the capability to easily upgrade the electrical power system be permanently installed.

The village precinct shall comprise of three distinct "zones":

- International Zone
- Residential Zone
- Operational Zone

Electrical services should include the following, but not be limited to:

- H.V. Reticulation and liaison with BSES for the provision of substations to the precinct.
- Pit and conduit system for main services trunks around the site;
- Main Switchboards and metering;
- Distribution Boards;
- Submain reticulation including provision for critical supplies;
- Final sub-circuit wiring;
- Cable ladder and Trays for all services;
- Uninterruptible Power Supplies;

- General Purpose Power;
- Special Purpose Power;
- Public Address and Sound Systems;
- Architectural Lighting;
- Security;
- Power Factor Correction;
- General Lighting;
- Floodlighting;
- Permanent and Temporary Security Lighting;
- Emergency and Exit Lighting;
- External and Precinct Lighting;
- Lightning Protection and Earthing;
- Provision for plug-in or permanent prime generators;
- Temporary cable pathways for power, temporary structures, technology/communications and broadcast; and
- Generators.

5.4.2 Standards and Requirements

In addition to the general standards previously mentioned, the electrical power system shall comply to but not necessarily limited to the following specific standards and requirements:

- Requirements of DDA.
- Requirements of the Commonwealth Games Federation.
- Requirements of the Host Broadcaster for the Commonwealth Games 2010.
- National Building Code of India.
- Telecom Regulatory Authority of India.
- Latest revision of relevant British and Indian Standards (latest date of either Standard takes precedence).
- BSES Rajdhani/Yamuna Power Ltd Supply and Installation Rules.
- ISO/IEC latest revision of Information Technology Standards (previously IEEE).

5.4.3 Coordination

Unless otherwise approved cabling and equipment should be either installed above anticipated sight lines or concealed. Coordination with other services should be managed to maintain required separations and to minimise the exposure of any cabling or equipment to mechanical impact.

5.4.4 Electrical Power Supply Strategy

To achieve the required reliable, safe and secure electrical power system, the benchmark solution is that two reliable sources of supply be provided, either two high voltage mains feeders from different zone substations or one high voltage mains feeder and generators.

- If two high voltage feeders are provided, critical supplies shall be evenly distributed across both feeders. Backup generators to both feeds of sufficient capacity to run the entire village shall be provided.
- If only one high voltage feeder is provided, then prime generators shall be used to provide two reliable sources of supply. Critical supplies shall be evenly distributed across the mains and prime generators. The generator system shall be configured in a parallel N + 1 system to provide full redundancy such that there is no loss of power if the generator fails. Backup generators to both feeds of sufficient capacity to run the entire village shall be provided.
- Key Technology equipment shall be protected a UPS system.

An alternative strategy can be proposed by the Design Consultants, but the outcome must remain the same.

5.4.5 Electrical Design Parameters

The electrical supply characteristics shall be as follows:

- 415 volt, 3 phase, four wire, 50 Hz; and
- MEN Earthing throughout.

A fault level at the main switchboard shall be determined by the Design Consultants and the supply authority.

A method of easily determining the power usage during the Games period shall be provided. For the legacy, it is recommended that consideration be given in the design to the provision of check metering for catering outlets, whether permanent or temporary.

5.4.6 Diesel Electrical Power Generation

All generators shall be high quality, efficient and quiet (attenuated), with additional sound proofing in key areas, if required to minimise disturbance.

Prime generators shall have sufficient fuel for a minimum of 48 hours continuous use of each generator unit and shall have the facility to be refuelled whilst the generator is in operation. Back-up generators shall have sufficient fuel for 12 hours continuous operation of each generator unit.

For back-up generators, a suitably rated generator switchboard shall be provided adjacent to the main switch room, with a permanent cabled connection to the "critical supply" busbars of the main switchboard, via an automatic transfer switch.

5.4.7 Uninterruptible Power Supplies (UPS)

Uninterruptible Power supplies (UPS) shall be provided to isolate the load from mains power transients or disturbances in voltage and frequency. UPS shall also supply conditioned power to the load for a specified period of time after input supply failure, in order to either support the load until the event has concluded or provide sufficient time to close down the computerised network systems.

All UPS shall be capable of safe, unattended operation and generally be designed to comprise the following systems:

- Rectifier/Battery Charger;
- Inverter;
- Battery Cabinet (ventilated);
- Synchronous Static By-Pass Switch;
- Manual Maintenance By-Pass Switch; and

- All necessary associated equipment, protection devices and controls including isolating switches, circuit breakers, instruments, alarms, monitoring voltage free contacts and displays.

UPS shall be provided for the following equipment:

- Key servers; and
- Security Systems.

5.4.8 Main Switchboards

Safe, secure, reliable compartmentalised main switchboards are required for Games village and ongoing legacy use, and shall be designed for the electrical load of each zone of the village. Zones with extremely high electrical loads or large spatial footprints may require more than one switchboard, however, the requirements will remain the same for each switchboard.

It is recommended that this arrangement remain in place for the legacy. The generator supply busbar via an automatic transfer switch shall receive supply from either a permanent or standby generator connectors external to the switchboard.

The main switchboards shall include 25% spare capacity/spare spaces for future. Each main switchboard in Games mode shall be supplied from a high voltage feeder and/or part generator supply which shall comprise the following:

- Essential supply busbars;
- Non-essential supply busbars; and
- Generator supply busbars,

Games main switchboards shall be free standing, metal clad type, front connected, incorporating the following minimum requirements:

- Form 3b segregation and separation.
- 3 phase and neutral busbar assembly. (Rating to be determined during the design).
- Air circuit breakers (fully withdrawable) for non-essential incoming supplies.
- Power analysers for recording, trending, peak load analysis etc complete with BMS or stand alone software communications interface.
- Bus-tie between feeder incoming ring supplies.
- Phase failure relays interfaced with BMS.
- Programmable Logic Controllers (PLCs), and supporting UPSs.
- Authority Metering.
- Automatic Transfer Switches.
- Surge Arrestors.
- Moulded Case Circuit Breakers.
- Busbars (suitably rated).
- Type tested construction.
- Provision for Power Factor Correction Cubicle.
- Provision for check metering.

It shall be noted that temporary main switchboards should be designed such that they could be re-used after the Games, possibly to be relocated elsewhere as the temporary facilities are removed and the site developed for long term legacy use.

5.4.9 Power Factor Correction Cubicle

Power factor correction equipment shall be provided in order to raise the power factor of the installation to a minimum of 0.97 lagging, thereby providing more useable power and to improve the quality of the mains power supply. The connection capacities shall be switched in 50 kVAr stages, so that the various stages are switched "in" and "out" depending on the type of load and power factor of the installation prior to connection. The design of the PFC equipment shall be so as to provide safe, unattended operation and shall generally be designed to comprise the following:

- Rated voltage of capacitors self healing type: 480/525 VAC;
- Operating temperature: 40°C to + 60°C;
- Step Controller (Regulator)
- Harmonic de-tuning reactors
- Forced ventilation
- Over temperature protection

5.4.10 Consumer Mains

Consumer mains shall be suitably rated to accommodate the maximum demand of the village zone it serves and it is recommended to include 25% spare capacity. Consumer mains shall comprise of either solid low impedance copper busduct or copper cables enclosed in fire rated construction in accordance with the Supply Authority requirements. Length of run should be kept to a minimum.

5.4.11 Submains

Submains cabling shall be robust, reliable and concealed from view, reticulating from the main switchboard to load centre distribution boards throughout the precinct.

All submains shall be designed and sized using maximum demand calculations, voltage drop and earth fault loop impedance calculations with appropriate 25% spare capacity.

The type of submains should generally be broken into three categories (Essential, Non-Essential and Mains/Generator). Designers shall determine the cable types depending on the category of the submains.

Essential supply submains should be designed in accordance with the standards for fire and life safety equipment and shall have fire and mechanical protection dependant on reticulation conditions.

Generator supply submains also need to be fire rated, and should have mechanical protection.

Designers should allow for the provision of temporary submains in Games mode for but not necessarily limited to the following:

From International Zone Temporary Main Switchboard:

- Main Entrance;
- Village Media Centre;
- Commercial Centre:
 - General Store;
 - Bank;
 - Call Centre and Mobile Phone Store;
 - Hair Salon;
 - Travel Agent;
 - Merchandise Store;

- Commercial Centre Post Office;
- Ticket Office;
- WADA Outreach Office;
- Florist;
- Dry Cleaning/Alterations;
- Photo and Camera Store;
- Electrical Appliance Store;
- Cyber Café;
- Recreational Centre; and
- Bar.
- General lighting and power (common areas);
- General air conditioning and ventilation; and
- Other spaces provided in this zone.

From Residential Zone Games use Main Switchboard:

- CGA Facilities;
- Resident Centre(s) (at least 10 off) Games Facilities only;
- CGA Services Centre;
- Sports Information Centre;
- Chef de Mission;
- Main Dining Room (include kitchen, preparation, staff and casual dining);
- Polyclinic;
- Religious Centre; and
- Other spaces provided in this zone.

Residential Sporting Facility Main Switchboard:

- Fitness Centre;
- Indoor Hall(s) (could be 2);
- Pool;
- Athletics/Playing Field;
- External lighting and power; and
- Other spaces and facilities provided in this zone.

From Operational Zone Main Switchboard:

- Access Control Points;
- Vehicle Check Points;
- Transport Mall;

- Accreditation Centre;
- CGA Parking;
- Village Motor Pool;
- Village Operations Centre;
- Security Command Centre;
- Logistics and Technology Centre;
- Staff Centre;
- Housekeeping; and
- Other spaces and facilities provided in this zone.

5.4.12 Distribution Boards

Distribution Boards are required for the safe, reliable distribution of electrical circuits to equipment throughout the precinct. Distribution Boards shall be located throughout the precinct and buildings regardless of whether they are of a temporary or permanent nature.

General or utility distribution boards should be of the wall or floor mounted sheet steel cubicle type suitable for accommodation in separate electrical cupboards, or if temporary mounted, securely installed on a suitable unistrut or similar metal frame. Distribution boards should be Form 1 construction and degree of protection of IP40. Distribution Boards shall incorporate proprietary copper busbar systems suitable for installation of interchangeable 1, 2 or 3 phase circuit breakers. Busbars shall have a minimum fault current rating of 20 kA for 0.1 second.

Distribution boards should be equipped with all circuit breakers necessary for the connection of all submain and sub circuit cabling required for equipment, lighting and power installation. Distribution Boards shall be located and dressed to minimise their visual impact, especially in high profile areas.

Generally, all circuit breakers shall have a minimum fault rating of 10 kA, with the Design Consultants providing discrimination and grading throughout the installation including the use of fault current limiters where required.

5.4.13 Technology Distribution Boards

A separate dedicated Technology Distribution Board System shall be installed to provide a reliable power to serve Games technology equipment. These boards shall comprise Generator, Essential and Non-Essential separated sections where power is received from a village main switchboard (Non-Essential or Essential) and from the village generators supplying the generator supply busbar of a village main switchboard. Final subcircuits radiate out of the distribution board to serve technical equipment through a UPS.

The Design Consultants shall consider the provision of residual current protection circuit breakers installed in distribution boards for the connection of sub-circuit cabling associated with general purpose outlets. All technology distribution boards shall have a minimum 25% spare capacity at Completion for use during the Games.

5.4.14 Surge Protection

Surge Protection shall be provided in Games to all main switchboards and Games technology distribution boards. It is also recommended to provide surge protection for legacy main switchboards and distribution boards.

The protection shall eliminate surges, transients etc that are transmitted in the supply authority networks as well as lightning strikes to the building and surrounding ground.

5.4.15 Wiring, Cabling and Supports

A cable management system shall be provided that provides a logical coordinated reticulation system. All cable routes shall be rationalised where possible to reduce clutter and improve manageability. Separation distances required shall be maintained between different types of cables in accordance with applicable codes and regulations.

Where cabling and/or cable routes are temporary, the installation shall use existing routes where possible. However, where this is not possible the cabling shall be installed in a manner that minimises damage to finishes and FF&E. Whilst, the installation should comply with all codes, a different approach can be taken to temporary installations rather than permanent.

Cables, supports and enclosures shall be designed to be concealed where possible utilising under plant spaces, ceiling spaces, unoccupied rooms such as plant rooms and stores and wall cavities etc to run cables and enclosures on the surface. Within inaccessible locations cables shall be installed within conduits with accessible ends which allow installation and removal when work is complete. Cable ladders and trays shall be sized with 25% spare capacity.

The Design Consultants shall propose specific workable cable pathways using the legacy infrastructure, (pits, conduits, risers) and temporary cabling pathways on ground, in conduits and on duckboards over temporary pedestrian paths, temporary poles with cables strung between where cabling pathways on ground is impractical, and the use of permanent or temporary fencing to temporary support cables in some locations.

Underground cables shall be double insulated type in heavy duty Category A enclosures and clearly marked where cables enter and leave the village, either side of road crossings and where visible draw-in pits do not clearly define routes.

Cabling shall be of the multi-stranded copper conductors type for Games use and is recommended for legacy use with minimum size as follows:

- 2.5mm² for power and lighting circuits;
- 1.5mm² for control circuits; and
- Equipment in accordance with manufacturers rating.

5.4.16 Sub-Circuit Requirements – Power

Sub-circuit reticulation shall be provided from each distribution board or Technology distribution board to the associated power outlets.

The following outlines the maximum number of power outlets to be connected to an individual sub-circuit for various ratings:

- 10A power outlets, (essential and non-essential):
 - Maximum 10 off (5 doubles) 10A outlets per 20 amp Single Pole Miniature Circuit Breaker (SPMCB) in air conditioned spaces.
 - Maximum 6 off (3 doubles) 10A outlets per 20 amp SPMCB in non air conditioned spaces.
 - 4 off (2 doubles) 10A outlets per 20 amp SPMCB in concessions and bars areas (whether temporary or not).
 - A dedicated outlet and 20A SPMCB and circuit shall be provided serving equipment rated at more than 1000 VA.
- 15A power outlets (essential and non-essential):
 - Maximum 1 off 15A outlet per 20 amp SPMCB.
- 20A/32A power outlets, non-essential:
 - Maximum 1 off 20A outlet per 32 amp SPMCB.

- Maximum 1 off 32A outlet per 40 amp SPMCB.
- Multi-phase Switched Power Outlets:
 - Dedicated circuit and circuit breaker of appropriate rating with neutral to each.
- Direct Connected Equipment
 - Dedicated circuit of appropriate rating generally to each item.
 - A number of similar items, each rated at less than 1,000 VA may be connected to one 20 amp circuit provided total equipment rating does not exceed 3,000 VA and any excess (starting) currents are not simultaneous.
- Lighting Outlets, Maximum Number:
 - Maximum 12 off outlets, with maximum total load of 1,500 VA per 10 amp SPMCB.
 - Maximum 18 off outlets, with maximum total load of 2,500 VA per 16 amp SPMCB.
 - Maximum 24 off outlets, with maximum total load of 3,000 VA per 20 amp SPMCB.

5.4.17 Power Outlets

Power outlets are required for the safe, reliable connectivity of electrical appliances to the village electrical power systems in Games and legacy use. Power outlets shall be of the same make and manufacture throughout the village. Generally, each faceplate shall be recessed or surface mounted as applicable.

Power outlets shall be provided for all electronic equipment. The outlets shall be located adjacent to the equipment so that they can be directly plugged in. Outlets can be either permanent or temporary. Temporary outlets can utilise extension cables and power boards, providing codes are met. Outlets shall be installed in a manner that minimises damage to finishes and FF&E. Consideration should be given to the use of outlets that allow international plugs to be used.

Rooms or spaces with high demands for outlets shall have sufficient capacity for the number of outlets to be easily and economically installed, if they are not permanently installed.

The Design Consultants shall determine the areas of high demand but shall include, but not necessarily be limited to, the following:

- All Media and Press areas;
- Cyber café;
- All Technology spaces; and
- Kitchens and Service Areas.

Impact resistant weatherproof type outlets shall be installed where subject to adverse environmental conditions and mechanical damage.

Power outlets are required for the safe, reliable connectivity of electrical appliances to the village electrical power systems in Games or legacy use.

5.5 LIGHTING

5.5.1 General

General lighting shall be provided to all habitable areas of the village, including storage and plant areas. It shall be fit for purpose, be efficient and flexible and form a functional part of the area it serves in accordance with the relevant codes and standards.

5.5.2 Exterior and Precinct Lighting

A safe, reliable, efficient external lighting system shall be provided to ensure safe passage of all users in all zones of the Village.

A selection of weatherproof wall, in-ground and pole mounted decorative and street luminaires shall be chosen to blend in with the external architecture. Suitable Low glare luminaires shall be used for all night or half night illumination on external pathways, landscaping, pick up, drop off and the external entrances, control points and parking areas.

External architectural luminaires shall be automatically controlled to suit the activity of the specific area. A separate temporary system shall be provided for the International and Operational zones associated with Games use. Road and street lighting should operate independently of these systems to the requirements of BSES.

In addition any external illuminated signage that is to be provided shall also be automatically controlled by the village lighting control system.

5.5.3 Lamps

The Design Consultants shall select lamps/tubes for their life expectancy, colour rendering and energy efficiency. Consideration shall also be given to the use of electronic ballasts throughout the village to provide greater efficiencies.

5.5.4 Lighting Control

A lighting control system shall be provided to effectively control the large quantity of luminaires. The system shall provide energy management, efficient and safe operation of the lighting network. The system shall be expandable, programmable and capable of controlling the loads associated with the public areas for interior and exterior lighting.

The security lighting levels adjacent to the entries to the village shall be integrated with dual technology motion detectors which detect unauthorised movement and activate the lighting to assist the CCTV surveillance cameras. Local switching shall be provided elsewhere, with light switches generally installed behind robust flush-plates. Surface mounted switches shall be installed on high impact mounting blocks of matching colour to the respective flush plates.

5.5.5 General Emergency and Exit Lighting

Self-illuminated emergency and exit sign lighting shall be provided to code, for the safe evacuation of all users within buildings or temporary structures. Further to the regulative requirements for the provision of emergency luminaires and exit signs, additional units shall be considered for installation in switchboard rooms, communications rooms, plant rooms and public toilets. Backup batteries shall be incorporated within each emergency luminaire and exit sign.

5.6 IT COMMUNICATIONS AND TECHNOLOGY

5.6.1 General

The temporary Games IT/Communications and technology systems should be designed to remain as flexible as possible to enable reasonable change of use in all areas without extensive modifications for all Games related operations, and to facilitate ease of installation of specific temporary technology systems for the Games by specialist supplier/operators.

The permanent IT/Communications systems associated with the residential block accommodation should be designed to accommodate Voice/Data, ADSL and Broadband capability for long term use. The designers shall liaise with the Telecom Regulator Authority of India for the design of the fibre optic

cable network linking all Games village sites, the broadcast and press centres and the Games village via selected communication carrier street networks.

The design of the site infrastructure shall principally consist of a fibre network using a system of secure underground conduits. The network should follow defined service corridors along road reserves within the Games village precinct. The system should have spare capacity for future expansion to allow for the re-configuration of the site post Games. Individual permanent or temporary structures shall be serviced from this network depending on user requirements. The designers should provide a system of secure service pits outside each permanent or temporary structure to facilitate connection of incoming cables.

Designers should consider the requirements of various telecommunications carriers prior to determining conduit quantities and capacity of street systems. Games user groups within the village should be temporarily seeking very reliable data links for both switched services and dark fibre. Cable route management should therefore focus on provision of physically separate conduit systems for the Games Telecommunications Carrier. This separation should extend to entries into the site, routed down opposite sides of the roads with sufficient cross-over points to provide separate points of entry to selected users.

A quantity of temporary Communications Equipment Rooms (CERs) and/or cross-connect frame cabinets shall be required to terminate and distribute services throughout the village. The designers should investigate the most cost-efficient solution to the site wide system, including the integration of all voice/data for the village users.

5.6.2 Communications Systems Extent

The design shall include for the provision of a structural cabling system that shall comprise of the following sub-systems:

- Single Mode Optical fibre (SMOF) cables for voice trunks.
- Multi-Mode Optical Fibre (MMOF) cables for data and security.
- Unshielded twisted pair (Cat 6 UTP) cabling for Voice and Data sub-services.
- MMOF dark cable for use by various communications and control systems.
- Cable pathways for temporary technology systems in Games mode.
- Telecom Communications Equipment Room(s).
- Building Distribution and Games PBX Equipment Room.
- Interconnections with other services.
- Earthing and surge arrestors.

5.6.3 Category 6 Structured Communications Cabling System

A Category 6 structural communications cabling system shall be provided which accommodates the following types of services:

- **Data Communications**
ISO/IEC, 10 Base T, 10 Base FL, 10 Base TX, 100 Base – TX, 100 Base – FX, TP-PMD, ATM, CDDI, FDDI, 1000 Base – TX, 1000 Base – SX, 1000 Base – LX, Frame relay
- **Telecommunications**
Telephones, Facsimile, Carrier lead-in lines, ISDN services, PBX exchange lines, Cordless Telephony
- **Wide Area Networks (WAN)**
ATM, ISDN, SONET, microwave and Satellite

- **Video**

Analog Video, Digital Video, Video Conferencing, Broad Band Video

- **Building Services**

Heating Ventilation and Air-Conditioning, Low Voltage Devices (Equipment Sensors etc.), Security, Energy Monitoring and Control, Lighting, Fire Life Safety, Fire Sensors, Smoke Detection, Motion Detection, Public Address, Modular Wall Systems, Paging Systems and Intercom system

5.6.4 Coordination

Unless otherwise approved IT/Communication cabling whether permanent or temporary and equipment shall be either installed above anticipated sight lines or concealed. Co-ordination with other services shall be managed to maintain required separations and to minimise the exposure of any cabling or equipment to mechanical impact.

5.6.5 Risers

All communicators cabling shall rise vertically through the structure within one of a series of dedicated risers positioned in a uniform manner around the village where applicable.

5.6.6 Access Equipment

All equipment shall be installed in equipment racks in dedicated IT/Communication Rooms located with each village zone. The equipment rooms shall be easily accessible.

All cabling systems shall be supported independent of ceiling systems.

5.6.7 User requirements

The Cat6 cabling system shall consist of Cat6 UTP and fibre optic backbone system with UTP horizontal cabling system that is capable of supporting the following services:

- Voice Grade Services (digital and analogue);
- Data Services;
- Wide area network services;
- Media provisions, and

This temporary cabling infrastructure should be capable of supporting the following village user groups:

- Control and Access Points;
- Village Media Centre;
- Accreditation;
- Cyber Café;
- Various outlets within the Commercial Centre and Arcade;
- Village Recreation Centre;
- Village Operations Centre;
- Security Command Centre;
- Logistics and Technology Centre;
- Staff Centre;

- Emergency services;
- Housekeeping;
- Commonwealth Games Services Centre;
- Sports Information Centre;
- Catering;
- Polyclinic; and
- Ticketing.

- with the permanent legacy cabling infrastructure supporting each individual block of residential accommodation.

Cable pathways should be designed and installed to provide accessibility for their entire route to facilitate temporary moves and changes, when in Games mode.

The Design Consultants shall document segregation from low voltage power by physical separation or metallic separation.

5.6.8 Carrier Connections

Communications infrastructure connection to the site shall be provided as follows:

- Redundant dual connections points of single Mode Optical Fibre (SMOF) to the Telecom Network and links to other Games village sites.

The incoming Telecommunications Carrier Services shall terminate in Communications Equipment Rooms located around the village, preferably on the structure face nearest a trafficable access point.

5.6.9 Carrier Services

The following services shall be required either as a permanent installation or as temporary services during the Games.

- ISDN on ramp services and PSTN Services for village PABX.
- PSTN Services for lifts in residential blocks.
- PSTN Services for Emergency Services.
- PSTN Services for ATM, Public Telephones.
- PSTN Services for facsimile machines, electronic cash dispensing machines (EFTPOS) and services associated with Games village site management administration.
- Cable TV Services including cable modems for Internet access.
- PSTN and ISDN Services for media, CGF, other user groups and athletes.
- Enhanced GSM system mobile services during pre-Games and Games mode and post Games.

5.6.10 Telecommunications

A telecommunications system shall be provided. The legacy infrastructure in the residential zone should be utilised for Games Mode and augmented temporarily with overlay facility cabling by the Telecom Regulatory Authority of India to each temporary building/space radiating from the CER. Where possible, telecommunications cabling shall be wire wrapped with other technology cabling and reticulated together using a common pathway.

5.6.11 Technology WAN/LAN Games Systems

A temporary fibre optic and control cabling system for the technology WAN/LAN Games Systems shall be provided. It shall radiate out of the TER to cross-connect frames around the village, generally wire wrapped with telecommunications cabling in common pathways.

5.6.12 Media

Communications Cat6 UTP cabling shall be provided to outlets in the media work area. Allow for 4 Games Information Terminals, 5 media workstations (double RJ45 to each position) and for a utility area for facsimile and photocopy machines.

5.6.13 Outside Broadcast

Design suitable cable pathways to the Press Conference Rooms. Camera cabling should reticulate to a raised platform at the rear of each Press Conference Room with audio tie lines connected to the audio system to be provided.

5.6.14 Fibre Backbone

Multi-mode tight buffered Fibre Optic cabling should reticulate to each communications rack on each floor from the distributor room(s).

5.6.15 Voice Backbone

A copper voice cabling backbone shall be provided. All voice cabling shall connect to the village cross-connect frames.

5.6.16 Mobile Phone System

A mobile phone system shall be provided. It shall include any antennas and power requirements. Coordinate the locations of the antennas with other services.

5.6.17 Telecommunications Equipment Room (TER)

The Telecom Regulatory Authority TER shall house all Telecommunications equipment for the incoming redundant fibre exchange cabling and be sized to house all the equipment for the Mobile Phone System.

5.6.18 Building Distributor Room

A Building Distributor Room shall be provided. The room shall be air conditioned and located next to the TER. It shall comprise:

- Equipment racks for fibre backbone termination and village active equipment and
- PABX main equipment and racks.

All cabling shall reticulate from this room including direct connection to the following:

- Security equipment head end;
- Fire Control Room;
- Lift(s); and
- Communications Rooms.

5.6.19 PABX

A compartmentalised internet protocol hybrid exchange PABX shall be provided for the Games telephone system and the Design Consultants shall determine the number of extensions, modular design and architecture during design development. As a minimum the PABX should operate over the structured cabling system and should have the following features:

- Multiple trunk services for multiple users with individual accounting.
- Partitioned for multiple users.
- Operator console and night switching arrangements.
- Voice mail, information services and automatic attendant.
- Call forwarding, pickup and transfer.
- Least call cost routing.
- Music on hold.
- Backup battery (minimum 4 hours).
- Complies with relevant telecommunications regulators.

5.6.20 Games Staff Radio System

The Games staff radio system shall comply with the requirements of the regulatory authority and should consist of hand held transceivers with associated accessories and charging racks, base station repeaters and antenna systems. The system shall be designed to accept the necessary trunk radio controllers and repeaters for even coverage throughout the village.

5.6.21 Television Services

The reception of TV programs shall originate from internal and external program sources for the Games. The control, processing, and distribution of programs to TV monitor/receivers in key areas of the village should be via a fibre/coaxial distribution network.

The system should be capable of reception, control and distribution of video and stereo audio signals of Games broadcast standard quality. Insertion of local cable TV and 'free-to-air' program channels into the TV Distribution System channel plan shall be accommodated. The distribution should include the possibility for digital HDTV programs.

Digital television signals are now broadcast and should be received and distributed around the village. Monitors/receivers should therefore be 16:9 aspect ratio. The distribution system should interface directly with the Outside Broadcast Vans in order to receive "live" Games feeds to be distributed throughout the village. Consideration should be made by the designers to the installation of a video display board "big screen" at a common athlete gathering point, where athletes and staff can watch live broadcast of events.

Reception of the following broadband RF television sources shall be provided:

- Full channel bandwidth of local cable TV Network and
- Free-to-air master antenna/s.

Reception of the following baseband video sources shall be provided:

- Character generator or video hard disk drive for information display.

The system should include selected cable TV channels and cable TV channels. Inserted into the TV Distribution System channel plan shall be all the "free-to-air" channels and local in-house television signal distributions.

Permanent independent MATV systems should be provided for each residential block, each with its own head end, mast head antennas and input for PAY TV. These systems operate independently of

the village distributed system and should be reticulated through each building via common risers and then to each dwelling. Provide a minimum of 2 off TV points and one off PAY TV point in each dwelling. The designers should consider whether live broadcast Games feeds are required to be distributed into the residential block MATV system

System components should be installed in racks within communications rooms or the like as close to an antenna location as possible. The radio system should be provided with a PABX interface to allow access to a selected channel of the radio system over any telephone.

5.6.22 Internet

A high quality and reliable broadband internet service shall be provided. It shall be reticulated to all areas of the village.

The Design Consultant shall liaise with the Organising Committee to ascertain the level of service required for the different categories of user and hence what the total minimum required bandwidth for the venue shall be.

5.7 SECURITY SYSTEMS

5.7.1 Closed Circuit Television (CCTV)

An IP based CCTV system shall be provided for the surveillance of selected areas in and around the village during the Games. The CCTV system shall be required to provide a clear sharp picture quality to monitors in a variety of light conditions from all areas 24 hours a day 7 days per week. The system shall be designed for the following but not necessarily limited to the following areas and activities:

- All entries and exits;
- Key Front of House areas;
- Key Back of House Areas;
- Compounds and transport malls
- Security patrols by Police and Special Services; and
- The perimeter of the village.

Main head end equipment shall be located in the security control room. The equipment shall be interfaced to the access control and security systems as appropriate.

Camera housings shall be appropriate to the installed position i.e. weatherproof, vandal resistant, etc. Externally mounted cameras shall be fitted with sun visors and thermostatically controlled heaters. The CCTV switches shall be designed to allow viewing of all installed cameras as required. Provide sufficient monitors in the Security Control Room to allow the system to operate efficiently.

Provide sufficient storage capacity for 1 month's continuous recording at 15 images per second (ips), minimum 800 x 600 resolution, 24 bit colour and appropriate equipment for spot recording of incidents and archiving. Provide a spare DVD recorder and monitor rack mounted independent of the monitoring system to play back CDs. Provide a video printer capable of producing A6 colour prints on roll fed paper. The printer shall be located in the Security Control Room. Provide a central time system using a source standard time signal. The time signal shall be used to time stamp all recordings and time-manage all equipment where appropriate. The system shall be capable of using cameras and PTZ equipment from any manufacturers and shall utilise fibre optic transmission to maintain quality.

5.8 MECHANICAL

5.8.1 General

A Mechanical Services system shall be provided to provide a suitable environment for all users and equipment. Comfort conditions apply to all internal or enclosed spaces. The design solutions adopted shall be based on these facilities operating on a 24 hour 7 day per week basis for the entire operational period of the village.

Mechanical services for temporary areas may be designed to accommodate only the weather conditions expected for the period of the Games. It is recommended applications be designed for year round operation under all conditions and building loads.

5.8.2 Energy Efficiency

For legacy components it is recommended that criterion for the design and specification of mechanical systems should be ecological sustainability and energy efficient. Example's of techniques which should be considered to minimise energy consumption and produce ecologically responsible design includes:

- Inherent low energy / high efficiency selection of plan and equipment;
- Zero rated ODP refrigerants including commercial refrigeration;
- Maximise use of outside air cycles to provide 'free' cooling during winter;
- Computerised energy management system for control of building services systems;
- Energy recovery from exhaust air systems.
- Recovery of cooling system heat rejection for pool water heating and residential domestic water heating.

5.8.3 Level 1 Comfort Conditioned Areas

The areas listed in the Schedule of Requirements as conditioned shall be provided with full air conditioning and designed to maintain room temperatures in each separate functional space at $22^{\circ}\text{C} \pm 1.5^{\circ}\text{C}$ db and relative humidity between a maximum of 65% RH and a minimum of 40% RH and provide a uniform, draught free air distribution throughout the conditioned area.

5.8.4 Level 2 Comfort Conditioned Areas

The areas listed in the Schedule of Requirements as comfort conditioned shall be provided with a conditioning system to maintain a wider range of comfort conditions between a maximum of 25°C db 65% RH and a minimum of 20°C db 40% RH in each separate functional space. The comfort conditions for an indoor swimming pool should be designed to maintain maximum internal conditions of 27°C db $\pm 1^{\circ}\text{C}$ db and $60\% \text{ RH} \pm 10\% \text{ RH}$. The system shall provide a uniform, draught free air distribution throughout the conditioned area.

5.8.5 Ventilation

The areas listed as ventilation only in the Schedule of Requirements shall be provided with mechanical supply or exhaust air ventilation systems.

5.8.6 Smoke Control

Smoke control systems shall be provided in accordance with international standards or where required by local authorities and be provided to all associated halls and indoor buildings in accordance with the local statutory requirements. Smoke control in residential units and commercial centre shall also

include any necessary outside air pressurisation of fire escape stairs and passages as required by local fire authorities and in accordance with fire engineer's recommendations.

It is recommended that any smoke control system consist of roof mounted smoke exhaust fans with low level outside air make up systems. The capacity of smoke control system and control requirements of the smoke system shall be determined during the design and coordination phase in conjunction with the local fire authorities

5.8.7 Design Criteria

The design of all comfort conditioning systems for all temporary areas should be based on maintaining the specified internal conditions within the range of the expected weather condition of the Games period with the internal heat gains, population densities and ventilation rates as listed in this clause.

For the legacy areas of the residential zone, it is recommended that the design of all air conditioning and comfort conditioning systems for all should be based on maintaining the specified internal conditions within the range of year round external weather conditions, internal heat gains, population densities and ventilation rates as listed in this section.

External Weather Benchmarks are as follows:

Commonwealth Games	32°C db	28°C wb
Summer	42.0°C db	22°C wb
Monsoon	33°C db	28.0°C wb
Winter	7.5°C db	5°C wb

5.8.8 Internal Light and Equipment Heat Outputs

All air conditioning and comfort conditioning systems should be designed to accommodate the light and equipment heat outputs that are to be provided in each space for these Games.

The detail of these heat outputs shall be determined at the early design stage of the facility in consultation with the Electrical Consultant. These internal heat outputs are to be taken as coincidental with peak internal population levels, outside air ventilation rates and external weather conditions in assessing system design requirements.

5.8.9 Outside Air Ventilation

Each comfort conditioning system and ventilation system should provide the minimum outside air for the peak design population densities in each space as required by the local authorities but should be no less than the values listed below. The determination of population levels shall be agreed by the organising committee during the early stages of the project.

<i>Non-Smoking Areas</i>	
Meeting Rooms, Conference Rooms	5 l/s per person
Dining Room, Bar, Cyber Cafe	7.5 l/s per person
Lounges	7.5 l/s per person
Media Facilities	7.5 l/s per person
Office Areas	5.0 l/s per person
Commercial Centre	5.0 l/s per person
Recreation Centre	5.0 l/s per person
Residential Unit	To match exhaust air requirements
Swimming Pool/Sports Hall	1.0 l/s / m ²
<i>Smoking Permitted Areas</i>	A minimum value of 20 l/s per person.

5.8.10 Supply and Exhaust Air Ventilation

All toilets, shower and common laundry areas shall be mechanically exhausted and be provided with a minimum exhaust air flow rate equivalent to 15 l/s / m² of floor area.

In residential units, individual room bathrooms shall be provided with exhaust air flow rates as local standards and codes. Make up air to all non-public toilet and shower exhaust air systems and in residential units should be provided by the comfort conditioning supply air systems in adjacent areas. Make up air to other toilet areas should be drawn from the adjacent naturally ventilated circulation area.

All food preparation and cooking areas should be provided with separate exhaust air systems. All cooking exhaust air systems should be designed to discharge air vertically above roof level. Exhaust air flow rates should be designed to comply with ventilation standards of local authorities.

Mechanical ventilation supply air systems shall utilise 100% filtered outside air to the minimum circulation rates as required by local authorities or to limit temperature rise in each ventilated space to a maximum of 5°C above ambient.

5.8.11 Air Filters

All air conditioning and mechanical ventilation supply air systems should incorporate dry media type air filters. Minimum standards of air filtration should be EU5 to Eurovent 4/5 Standard for all air conditioning and comfort air conditioning systems and EU3 to Eurovent 4/5 Standard for Mechanical ventilation supply air systems.

All kitchen exhaust air systems should be fitted with grease retention air filters of a type acceptable to local authorities.

5.8.12 Acoustics

All air conditioning and mechanical ventilation supply air systems shall be designed to maintain the following internal noise criteria with all systems operating:

Bar / Cyber Café	NR45
Circulation Spaces	NR45
Change Room/Laundry/Toilets	NR40
Dining Room	NR40
Commercial Centre	NR40
Recreation Centre	NR40
Commonwealth Family Area	NR35
Conference/Meeting Rooms	NR35
Office Facilities	NR30
Media Facilities	NR30
Residential Units	NR30

External noise generated by mechanical services should be designed to meet relevant environmental noise codes external to all windows of permanent residential facilities and at the site boundary.

5.8.13 System Selection

For the legacy, it is recommended that all air handling units and duct distribution systems be designed and installed to cater for the use of these Games village sites to conditioning standards listed under peak summer, monsoon and winter conditions.

Where chilled water cooling systems are proposed, the cooling coils, chilled water pipe reticulation, heating system and controls should be designed and installed to meet the above conditions. The installed capacity of the central chilled water system, however should be limited to that required for the expected weather conditions for the period of the Commonwealth Games. Provide space and all necessary valve and pipe connections for future installation of temporary or permanent additional chiller capacity to cater for the total system demand for operation in peak summer conditions.

Where DX cooling systems are proposed by the designers for permanent areas, then the DX equipment installed for the Commonwealth Games should be designed for the full peak summer, monsoon and winter conditions. DX systems for temporary facilities need only be designed for the Commonwealth Games period.

Computer based Equipment Rooms, Server Rooms and the like to be air conditioned by packaged Computer Room Air Conditioning CRAC type units utilising DX systems with N+1 redundancy.

5.8.14 Air Handling Units

Air handling units serving comfort conditioned areas shall be designed to cater for the highly variable population densities and provide individual temperature and dehumidification control to these areas. It is recommended that the selection of equipment for residential and recreational areas be of the higher institutional quality construction to be better able to cater for the 24 hour / 7 day/ week operation required for these areas.

5.8.15 Building Monitoring and Control System (BMCS)

All major mechanical services systems shall be monitored and controlled by a direct digital building management control system (BMCS) utilising multiple DDC controllers communicating to a central operator console. The DDC controllers should be capable of stand-alone operation.

The BMCS shall perform all control, monitoring and alarms for mechanical services and be interfaced with other services such hot water systems, security and electrical systems.

5.8.16 Mechanical Services Requirements

International Zone

Space / Sub-Space	Area	Level 1	Level 2	Ventilation only	No treatment
International Zone					
Guest Pass Centre					
Guest Pass Collection	50	x			
Guest Pass Return	25	x			
Waiting Area	25	x			
VIP Waiting Area	25	x			
Staff Work Area	50	x			
Male Toilets	10			x	
Female Toilets	10			x	
Village Media Centre					
Reception/Help Desk	50	x			
Media Work Area	100	x			
Press Conference Room 1	200	x			
Press Conference Room 2	75	x			
Press Conference Room 3	75	x			
Interview Room	20	x			
Male Toilets	10			x	
Female Toilets	10			x	
Access Control Point	100				x
Guest Parking	2000				x
Main Entrance Vehicle Load Zone	200				x
Commercial Centre					
General Store	100	x			
Bank	75	x			
Call Centre	50	x			
Hair Salon	75	x			
Travel Agent	50	x			
Merchandise Store	150	x			
Post Office	50	x			
Ticket Office	25	x			

Space / Sub-Space	Area	Level 1	Level 2	Ventilation only	No treatment
International Zone					
WADA Outreach Office	25	x			
Florist	25	x			
Dry Cleaner/Alterations	25	x			
Photography/Camera Store	50	x			
CD/Electrical Store	50	x			
Male Toilets	25			x	
Female Toilets	25			x	
Cyber Cafe	300	x			
Recreational Centre					
Games Room	300	x			
TV Lounge	50	x			
Bar	400	x			
Welcome Ceremony Plaza					
Stage	100				x
Seating Plaza	800				x
Green Room	50	x			
Equipment Storage	50				x
Male Change Room	25		x		
Female Change Room	25		x		
Zone Control Point	25				x

Residential Zone

Space / Sub-Space	Area	Level 1	Level 2	Ventilation only	No treatment
Residential Zone					
Residential Units	Will depend on unit designs	x			
CGA Facilities					
CGA Offices	Based on final space allocation	x			
CGA Medical Spaces	Based on final space allocation	x			
CGA Storage	Based on final space allocation			x	
Resident Centres					
Reception/Front Desk	10	x			
TV Lounge	100	x			
Housekeeping Storage	25			x	
Public Telephones	n/a				x
CGA Business Centre	50	x			
Meeting Room	25	x			
Laundry	100			x	
Cyber Café	100	x			
Games Room	50	x			



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Space / Sub-Space	Area	Level 1	Level 2	Ventilation only	No treatment
Residential Zone					
Male Toilets	10			x	
Female Toilets	10			x	
CGA Services Centre					
Reception	25	x			
Transport Desk	10	x			
Finance and Rate Card Desk	10	x			
Technology Desk	10	x			
CGA Services Administration Offices	50	x			
Meeting Room	50	x			
CGA Services Staff Work Area	50	x			
CGA Assistants Office	12	x			
CGF Office	12	x			
Male Toilets	10			x	
Female Toilets	10			x	
Sport Information Centre					
Reception	25	x			
Transport Desk	10	x			
Sport Information Desks	150	x			
Meeting Room	50	x			
Sports Entries Office	25	x			
Results Production Office	25	x			
Male Toilets	10			x	
Female Toilets	10			x	
Chef de Mission Meeting Room					
	300	x			
Main Dining Hall					
	5000				
Baggage Claim Area			x		
Dining Hall Seating		x			
Food Services			x		
Male Toilets				x	
Female Toilets				x	
Preparation Kitchen			x		
Dry Storage			x		
Refrigerated Storage					x
Waste Compound					x
Loading Dock					x
Staff Change Room-Male			x		
Staff Change Room-Female			x		
Catering Office		x			
Casual Dining Hall					
	700				
Baggage Claim Area			x		
Dining Hall Seating		x			
Food Services			x		
Male Toilets				x	
Female Toilets				x	
Preparation Kitchen			x		
Dry Storage				x	

Space / Sub-Space	Area	Level 1	Level 2	Ventilation only	No treatment
Residential Zone					
Refrigerated Storage					x
Waste Compound					x
Loading Dock					x
Polyclinic	1000				
Polyclinic Reception/Waiting Area	50	x			
Polyclinic Administration Offices	60 (3x20)	x			
Pharmacy	90	x			
General Outpatient Care Facilities	250	x			
Emergency Care Facilities	250	x			
Physiotherapy	50	x			
Radiology Facilities	50	x			
Laboratory Services	50	x			
Dental and Optical Care Facilities	50	x			
Podiatry	50	x			
Medical Supplies Storage	30	x			
Male Toilets	10			x	
Female Toilets	10			x	
Ambulance Waiting Area	25 each	x			
Doping Control Centre	175				
Waiting/Reception Area	100	x			
Processing Area	30	x			
Toilets	15		x		
Office/Store	15				
Chaperone Waiting Area	15				
Recreational Facilities					
Fitness Centre	600	x			
Male Change Room	50		x		
Female Change Room	50		x		
Sauna – Male	10				x
Sauna – Female	10				x
Indoor Hall 1	2000		x		
Indoor Hall 2	2000		x		
Swimming Pool	4500				x
Athletics Track	10000				x
Religious Centre	100				
Prayer Room	80	x			
Storage	10				x
Male Toilet	10			x	
Female Toilet	10			x	

Operational Zone

Space / Sub-Space	Area	Level 1	Level 1	Ventilation only	No treatment
Operational Zone					
Athlete Transport Mall					
Bus Load Zone	25000				x
Transport Operations Centre	100	x			
Access Control Point	50 (each)				x
Armoury *	50	x			
Village Accreditation Centre					
Baggage Screening	100		x		
Access Control Point	100				x
Accreditation Validation	50	x			
Problem Resolution	150	x			
Athlete Waiting Area	50	x			
DRM Meeting Room 1	40	x			
DRM Meeting Room 2	20	x			
DRM Meeting Room 3	20	x			
DRM Meeting Room 4	20	x			
Sports Entries Office	20	x			
Village Allotment Office	20	x			
Logistics/Freight Area	150				x
Left Luggage Area	75			x	
CGA Parking	9000				x
Village Motor Pool	8700				
Vehicle Parking	3000				x
Vehicle Maintenance	2000				x
Vehicle Refuelling	2000				x
Drivers Lounge	200	x			
Male Toilets	10			x	
Female Toilets	10			x	
Bus Holding Area	1500				x
Village Operations Centre					
Mayors Office	25	x			
Village Managers Office		x			
Village Management Work Area	240	x			
Village Communications Centre	50	x			
Food Services Office	10	x			
Transport Operations Office	10	x			
Meeting Room 1	50	x			
Meeting Room 2	100	x			
Male Toilets	10			x	
Female Toilets	10			x	
Security Command Centre					
Security Commander Office	25	x			
Security Work Area	240	x			
Briefing Room	150	x			
CCTV Monitors	75	x			

Space / Sub-Space	Area	Level 1	Level 1	Ventilation only	No treatment
Operational Zone					
Armoury *	10	x			
Staff Break Area	100	x			
Emergency Vehicle Parking Area	1000				x
* May require humidity control.					
Logistics Centre					
Logistics Warehouse	2000			x	
Loading Bay	1000				x
Logistics Office	250	x			
External Logistics Storage	2000				x
Cleaning and Waste Compound					
Cleaning and Waste Office	30				
Storage for Liquids and Detergents	20				
Equipment Storage	200				
Waste and Recycling Containers	500				
Vehicle Staging Area	100				
Technology Centre					
Technology Management Office	20	x			
Technology Work Area	240	x			
Communications Equipment Room	50	x			
Technology Warehouse	1000		x		
Workforce Centre					
Workforce Check In	200		x		
Workforce Office	50	x			
Workforce Briefing Area	100				
Male Change Rooms	100			x	
Female Change Rooms	100			x	
Staff Dining Hall					
Baggage Claim Area			x		
Dining Hall Seating		x			
Food Services			x		
Male Toilets				x	
Female Toilets				x	
Preparation Kitchen			x		
Dry Storage				x	
Refrigerated Storage					x
Waste Compound					x
Loading Dock					x
Housekeeping					
Central Housekeeping Storage	1000		x		
Satellite Housekeeping Storage	50 (each)		x		

Venue Utilities

Space / Sub-Space	Area	Level 1	Level 1	Ventilation only	No treatment
Venue Utilities					
Electrical Sub-Station	To suit design				
Electrical Switch Room	To suit design				
Building Distributor Room	To suit design				
Distribution Board Cupboards	To suit design				
Generator Compound(s)	To suit design				
Fuel Storage	To suit design				
Gas Supply Control Room	To suit design				
Filtration Plant Room	To suit design				
Hydraulic Plant Room	To suit design				
Water Storage	To suit design				
Pump Rooms	To suit design				
Water Supply Control Room	To suit design				
Sewerage Control Room	To suit design				
Mechanical Plant Room	To suit design				
PABX Room	To suit design				
Communications Cupboards	To suit design				
Services Reticulation Space	To suit design				

5.9 HYDRAULIC SERVICES

An efficient, reliable and effective potable water and sanitary drainage system shall be provided that complies with international best practice standards. The systems should serve all areas, equipment, FFE and other installations of the village including but not limited to the international, operational, residential and sporting/recreational zones.

The various hydraulic service systems should include cold, hot and warm water, sanitary plumbing and drainage. The systems should include the following:

- Provision of cold water to fixtures, plant and equipment;
- Provision potable cold water to all sanitary fixtures and fittings;
- Provision of potable 65°C hot water to sanitary fixtures and fittings NOT used for the purposes personal hygiene;
- Provision of potable 50°C hot water to sanitary fixtures and fittings USED for the purposes personal hygiene;
- Provision of potable 42°C hot water to sanitary fixtures and fittings USED for the purposes personal hygiene in dedicated disabled facilities;
- Provision to isolate water services to fixtures groups or amenity blocks;
- The ability to isolate systems not in everyday use;
- Proposals for the adequacy and reliability of supply; AND
- Sanitary and trade waste plumbing and drainage.

All materials to be used in construction of pipework including ancillary fittings and equipment shall be of a quality and type suited to provide a long service life with low maintenance.

5.9.1 Water Supply and Sewerage Infrastructure

The overall village site will require a major system of water and sewerage services infrastructure. Certain components of this system may be of a temporary nature and it will be the decision of the designers how best to achieve the mix of permanent and temporary infrastructure to the site.

It is recommended a master plan for implementation of the services be produced as one of the first stages of any design concepts. The plan shall address issues such as an assessment of internal services requirements, system loads, ownership issues and the extent of temporary or permanent works.

5.9.2 Natural Gas or LPG Gas

Natural Gas shall be provided to the site via in-ground reticulation mains, subject to availability as an external authority supply service. Where gas is not available in this form, consideration should be given to providing bulk LPG storage facilities for use in cooking at the catering facilities within the international and operational zones. On site storage gas tanks should be sized to meet a minimum of a 5 day demand from all commercial kitchens on site.

5.9.3 Sanitary Drainage

The Design Consultants shall provide a Sanitary Plumbing and Waste Drainage system to all fixtures, fittings, plant and equipment that require it.

The sanitary drainage system shall discharge to the local authority system in an approved manner. Where an authority sewerage drainage system is not available or cannot reliably meet with the discharge demands of the village, an alternate means of disposal shall be provided, such as on site treatment. Sewerage from temporary buildings shall be collected and where possible gravity drain to the authority sewer or in ground sewer service. Where this is not possible due to the facility location or prohibitive costs a temporary collection tank should be located adjacent to the facilities. The storage tank shall collect sewer waste during the event for collection after each day by pump out tanker truck.

All drainage design regardless of whether it is of a temporary or permanent legacy nature shall be carried out in the accordance with the local code and authority requirements. The system shall be designed with sufficient pipe grades and velocities to ensure self cleaning action is maintained within the drainage system. The system shall be provided with surface access for all piped drainage networks. For legacy the maintenance of trap seals shall be considered with adequate venting and trap priming to ensure water seals are not pulled or suffer from evaporation during long periods when the venue is not in use

5.9.4 Sanitary Plumbing

The sanitary plumbing system shall consist of suspended soil, waste and vent pipe work discharging to the low level in ground gravity drainage system. The design shall be such that local blockage or malfunction shall only disable a maximum of 33% of the fixtures served.

Sanitary plumbing design shall be carried out in the accordance with IS standards and local authority requirements. The system shall incorporate sufficient pipe grades and water velocities to ensure self cleaning action in the system is maintained within the drainage system with regular access cleaning points throughout.

5.9.5 Trade Waste

Grease interceptors/ arrestors shall be provided for greasy waste from food preparation areas. Arresters should be located in areas external to the main stadia where ever possible to allow ease of access and cleaning operations to be carried out.

5.9.6 Toilet Flush Systems

Dual flush (6/3 litre flush) cisterns shall be incorporated in toilet flushing systems for all types of water closets in both temporary and permanent sites.

5.9.7 Drinking Quality (potable) Cold Water

A potable cold water supply shall be provided. It shall be reticulated from a connection with the authority mains to plumbing fixtures in all areas throughout the village.

Prior to detailed design pressure and flow characteristics of the authority water supply are to be tested to ensure reliability. Where local water supplies are insufficient to meet peak loads it is recommended on site storage be utilised in the form of storage tanks and pressure boosting pumps. The stored quantity of water should be equal to one day village demand during Games mode. The system shall incorporate pressure boosting pumps within the network to ensure consistent flows and pressures.

Designers shall assess cold water demand from the number of user points required for the whole village or site. A recognised simultaneous demand factor is to be applied to the maximum possible load to determine the maximum probable flow. Pipes shall be sized for calculated flow rates and include a separate allowance for public toilet areas to cater for peak loads experienced during breaks in play and end of sessions. Back flow protection devices shall be provided to prevent cross contamination of the potable water supply from kitchen and ground maintenance areas where chemical storage and mixing is carried out.

5.9.8 Pre-Treatment of Towns Water

Prior to reticulation all authority mains water shall be treated to a sufficient level of purity to achieve compliance with W.H.O standards for potable drinking water. It is recommended that this be achieved through an approved treatment system complying with relevant IS or BS standards such as RO filtration, Ozone and Chlorination treatment.

5.9.9 Potable Hot Water

Designers shall incorporate a system of hot water plant and reticulation that is able to deliver potable hot water to fixtures and fittings at various temperatures ranges.

As a guide the following hot water temperatures are applicable for the Games facilities:

- 75°C for cooking and food preparation areas (Not including kitchen staff basins);
- 50°C for general purpose areas ablution fixtures showers, basins, baths, etc.; and
- 43°C for disabled and parenting areas.

Tempered water shall be provided to all fixtures within the village zones used for personal hygiene. Hot water to disabled facilities should be restricted to 43°C in all cases by approved thermostatic mixing valves to. Tempering valves and bi metal activated valves are not considered appropriate for this application, mandatory fail safe action is considered of primary importance to avoid possible safety risks associated with hot water scalding.

5.9.10 Hot Water System Design

It is recommended that for all substantial or permanent buildings the hot water system be designed in accordance with the principals of a pumped flow and return system. Dead legs within the system should be kept to a minimum in all cases. Hot water pipe work should be insulated with non toxic heat resistant material with an approved thermal conductance and combustion and smoke emission ratings.

5.9.11 Water Conservation Systems

It is recommended pressure compensating flow restrictors be provided on tap outlets throughout the village precinct (other than warm water outlets served from thermostatic mixing valves). As a guide the following flow rates are recommended:

Basins	4 l / min
Sinks	6 l / min
Showers	10 l / min

5.9.12 Roof Water and Storm Water Drainage

A gravity storm water drainage system shall be provided to all village precinct areas including main roofs, external plaza, landscaped areas, soft landscaping and exposed areas of the village structures. Storm and rainwater runoff from the facilities shall discharge to the storm drain pipework infrastructure.

5.9.13 Roof Gutters and Downpipes

A system of roof gutter drainage shall be provided for all temporary and permanent buildings or structures within the village precinct. Overland flow paths shall be incorporated in any design to ensure the village remain flood free during all ranges of storm duration or intensity. Roof gutters shall be designed to the 1:100 year storm event and be fitted with expansion devices, sumps and overflows in all cases. All connecting pipe work from these areas shall have similar capacity.

5.9.14 Rainwater Harvesting

For the legacy it is recommended a system of drainage pipes and tanks be designed to capture rainwater from the main roofs, where deemed economically viable. This will allow harvested water to be stored in large tanks or underground aquifers for reuse in WC flush systems via a pumped pipe work system.

5.9.15 Grey Water

For legacy the utilisation of on site treatment plant is recommended and a similar concept be investigated and considered for utilising grey water (treated effluent water). If incorporated the standard of effluent treatment must be very high and maintain a strict criterion if it is to be used for irrigation purposes or WC flushing. This system is not viable if effluent water is treated off site or the on site effluent plant is not running up to date treatment technologies or process procedures.

5.9.16 Materials and Pipe Systems

Pipes used for carrying potable and non potable water and drainage waste water shall be fit for purpose and manufactured in accordance with the relevant IS standards. Materials shall be robust and durable specifically manufactured and designed for the purpose of conveying plumbing services. All joints shall be sealed through either mechanical or welded means in accordance with manufacturer's instructions.

5.9.17 Branch and Fixture Isolation

It is recommended that all branch connections from infrastructure mains, ring mains, pipe risers and supplies to major plant be provided with separate isolation valves to allow isolation of each functional area or fixture group. Individual fixtures such as hand basins, sinks and water closets should have stand alone isolation valves.

5.10 FIRE SERVICES

A complete and integrated Fire Protection Services system shall be provided throughout various zones of the village. Fire safety systems within the residential, international, sporting/recreational zones of the village are essential in providing a safe environment for athletes, officials, and employees at the Games village site.

The following section gives a guideline in the type of protection systems that would be expected within this site to ensure life safety provisions are met. It is important designers take into account the configuration of the Games village site and undertake an analysis specific to building(s) and standalone temporary structures before determining the amount or type of fire protection provided at each particular village building or site.

5.10.1 Fire Evacuation Plan

A fire evacuation plan specific to each zone at the Games village shall be provided and include input from all stakeholders including but not limited to Games village operators, police, fire brigades and design consultants. The plan will be calculated with all facilities operating at capacity and include persons located in or using the temporary facilities. The safety plan shall ensure that a safe and orderly evacuation of a single or multiple building(s) or temporary structure(s) can be undertaken in a fire or public hazard scenario. The plan shall take into account egress and exit paths, crowd control and integrated life safety issues.

5.10.2 Fire Protection Services

For each Games village site or zone designers should consider a range of fire protection options including but not limited to the following:

- Fire Sprinkler System;
- Fire Detection and Alarm System;
- Emergency Warning and Intercommunication System;
- Fire Hydrants;
- Hose Reel System; and
- Fire Extinguishers.

5.10.3 Fire Codes and Standards

It is recommended that the design process follow construction and installation guidelines reflected in the following documents, in association with provisions and performance requirements of the local codes:

- IS Standards
- British Standards
- NFPA Standards

5.10.4 Fire Sprinkler System

Where required by IS or BS standards an Automatic Fire Sprinkler Systems shall be provided to protect the high rise legacy buildings within the village residential zone. Any required automatic fire sprinkler network shall be connected into a reliable source of water supply (authority main or tank storage) and sized as per the relevant code hazard requirements. Adequate flow and pressures shall be provided by dual electric and diesel fire booster pumpsets. The system shall be capable of connection to fire authority vehicles for additional boosting in all cases. Designers should consider

incorporation of a dedicated fire control valve room with direct egress from the outside of the building clear of central crowd evacuation routes.

5.10.5 Fire Detection and Alarm System

A Fire Detection and Alarm System shall be provided within buildings where required by local and statutory codes. It is recommended that the Fire Detection and Alarm System be the latest technology, fully addressable complete with sub panels, mimic panels, and fire fan control panels where applicable.

An assessment of each Games Village zone shall be provided by the designers to determine to what extent temporary buildings or facilities are to be protected by a Smoke Detection and Alarm System. Any such system shall be incorporated within the main monitoring network.

5.10.6 Emergency Warning and Intercommunication System (EWIS)

Where required by local codes an Emergency Warning and Intercommunication System shall be installed to facilitate controlled, staged evacuation. Emergency Warning and Intercommunication System should be extended to integrate significant temporary facilities or buildings as required under the applicable codes or determined by the fire engineering consultant in the same manner as the Smoke Detection and Alarm System.

5.10.7 Fire Hydrants

A Fire Hydrant system shall be installed throughout the village precinct. The Fire Hydrant system shall consist of fire hydrant valves located in or adjacent escape stairwells to provide coverage to the entire village under the relevant IS standards and design codes.

The fire hydrant network shall be connected into a reliable source of water supply (towns main or tank storage). Adequate water flow and pressures shall be provided by dual electric and diesel fire booster pumpsets with the entire system capable of connection to fire authority pumper vehicles for additional boosting in all cases.

5.10.8 Hose Reels

Fire Hose Reels shall be provided throughout the village precinct to meet codes and standards. Fire Hose Reels shall be serviced from either a fully independent water supply or the main Fire Hydrant System network. The supply shall be complete with booster pumps where required pressures and flows cannot be achieved through the supply gravity or authority system.

5.10.9 Fire Extinguishers

Fire Extinguishers shall be provided throughout the village precinct sites to meet codes and standards. Fire Extinguishers shall be housed in tamper proof cabinets where they are accessible to the general public or in locations where they may be stolen. The size, type and location of fire extinguishers shall be in accordance with local regulations and codes and be provided with the appropriate signage. Additional extinguishers shall be installed to protect special hazards, such as but not limited to Electrical Switchrooms, Kitchens, Plantrooms, Substations, Generator Rooms, Lift Motor Rooms and Flammable Liquid Stores.

In addition to these requirements special application wet chemical Fire Extinguishers shall be installed in the kitchens and hot food/beverage prep-locations.

Fire Extinguishers shall be housed in tamper proof cabinets where they are accessible to the general public or in locations where they may be stolen. The size, type and location of fire extinguishers shall be in accordance with local regulations and codes. All Fire Extinguishers shall be provided with the appropriate signage.

SECTION 6

6 FURNITURE FIXTURES AND EQUIPMENT

6.1 GENERAL

All equipment required to own, operate and maintain the Games Village shall be provided. All equipment shall include reasonable spares, consumables and technical support.

Storage shall be provided for all equipment.

6.2 FURNITURE AND FIXTURES

The Games Village shall be fully equipped with all furniture and fixtures necessary to operate the precinct for the Commonwealth Games.

This shall include, but not be limited to:

- Beds, Wardrobes, Tables, Lamps and all other furnishings required in the Residential Units;
- Tables;
- Desks;
- Chairs;
- Storage cabinets;
- Notice boards;
- Clocks;
- Lockers; and
- Miscellaneous items.

The full list of FF&E will be extensive and, from previous experience, cover 50 to 100 types of item. The exact list will depend on Organising Committee policy.

For the legacy, it is recommended that the furniture and fixtures be provided for all modes.

6.3 TECHNOLOGY EQUIPMENT

All technology equipment required at the Commonwealth Games Village shall be provided. This shall include reasonable spares, consumables and technical support. Equipment shall be fully installed, including cabling and connections, and maintained during the Games.

This shall include, but not be limited to:

- Servers;
- Computers;
- Printers;
- Servers;
- Fax machines;
- Photocopiers;
- Telephones;
- Radios; and
- Miscellaneous items.



APPENDICES

- Appendix A – 2010 Delhi Functional Planning Schedule
- Appendix B – Drawings
 - Planning Principles – Precinct
 - Planning Principles – Venue
 - Concept Master Plan
- Appendix C – Planning Principles (from CGF Games Manual - Overlay/Venue Development)

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Appendix A - Functional Planning Schedule

EKS

Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
International Zone						
	Guest Pass Centre					
	Guest Pass Collection	50	Area for the collection of Guest Passes.	Should contain shelving for storage of passes and Guest identification.		
	Guest Pass Return	25	Area for the return of Guest Passes.	Should be in the same space, but separate from Guest Pass collection.		
	Waiting Area	25	Waiting area for Guests and Media.	Should have appropriate seating for 5-10 people.		
	VIP Waiting Area	25	Waiting area for VIPs.	Should be separate to general waiting area.		
	Staff Work Area	50	Work area for staff issuing Guest Passes.	Can be a partitioned area within Guest Pass Centre with workstations, faxes, telephones and printers.		
	Male Toilets	10	Shared toilets for all constituents.			
	Female Toilets	10	Shared toilets for all constituents.			
	Village Media Centre					
	Reception/Help Desk	50	Reception desk at entry to Village Media Centre.	Should accommodate waiting for 20 people.		
	Media Work Area	100	Workstations and Games Information terminals for Media.	Should include a minimum of 4 dedicated Games INFO terminals, 5 Media workstations.		
	Press Conference Room 1	200	Primary Press Conference Room for Village Media Centre.	Should accommodate up to 200 people.		
	Press Conference Room 2	75	Secondary Press Conference Room.	Should accommodate 25-50 people.		
	Press Conference Room 3	75	Secondary Press Conference Room.	Should accommodate 25-50 people.		
	Interview Room	20	Space for 'one on one' interviews.			
	Male Toilets	10	Shared toilets for all constituents.			
	Female Toilets	10	Shared toilets for all constituents.			
	Access Control Point	100	Space for security screening of all Guests entering the Village.	Should be a sheltered space with magnetometers, space for queuing.		
	Guest Parking	2000	Parking area for Guests, holding area for Media buses.	Should accommodate up to 50 cars and 2 bus holding bays.		



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Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
	Main Entrance Vehicle Load Zone	200	Load Zone for Guests and Media at Main Entrance.	Should accommodate bus and car loading simultaneously, area required will depend on configuration.		
	Commercial Centre					
	General Store	100	Will accommodate general retail goods, personal items, newsagency, etc.			
	Bank	75	Will accommodate normal banking facilities and ATM machines.	Will require safe for money storage.		
	Call Centre	50	Retail facility for sale of mobile phone equipment, sim cards, etc.			
	Hair Salon	75	Male and female hair salon, beauty parlour,			
	Travel Agent	50	Information and booking office for local and international travel,			
	Merchandise Store	150	Retail store for all licensed Games Merchandise,	Should include storage for additional merchandise.		
	Post Office	50				
	Ticket Office	25	Ticket Outlet.	Could be a temporary structure.		
	WADA Outreach Office	25				
	Florist	25		Could be accommodated in another outlet.		
	Dry Cleaner/Alterations	25	'Front Desk' for dry cleaning/alterations service.	Could be accommodated in another outlet.		
	Photography/Camera Store	50		Optional within International Zone.		
	CD/Electrical Store	50		Optional within International Zone.		
	Male Toilets	25	Male Public Toilets.	Could service other areas of the International Zone.		
	Female Toilets	25	Female Public Toilets.	Could service other areas of the International Zone.		
	Cyber Cafe	300	Internet services for Village residents.	Should accommodate minimum 100 computer workstations, additional wifi and data connection points.		



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Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
	Recreational Centre					
	Games Room	300	Area for pool tables, pinball machines etc. for the exclusive use of residents.			
	TV Lounge	50	Relaxation area with comfortable furnishings and TVs.			
	Bar	400	Bar area with capability to host live music events.	Should comfortably accommodate up to 200 people.		
	Welcome Ceremony Plaza					
	Stage	100	Stage area for presentations and performances.	Stage to be a covered area.		
	Seating Plaza	800	Seating area for team delegations.	Should accommodate up to 500 people.		
	Green Room	50	Waiting area for VIPs and performers.			
	Equipment Storage	50	Storage for technical equipment, props, etc.			
	Male Change Room	25	Change room for performers.			
	Female Change Room	25	Change room for performers.			
	Zone Control Point	25	Accreditation Checkpoint between international and Residential Zones.	Sheltered space with lockable gate.		
Residential Zone						
	Residential Accommodation	Will depend on unit designs	Residential accommodation for Village residents.	Must accommodate 8,000 Athletes and Officials, max. 14 persons/unit.		
	CGA Facilities					
	Chef de Mission Office	Based on final space allocation	Office accommodation for Chef de Mission's in Residential Zone.	Will be located at or adjacent to Residential Accommodation.		
	CGA Office/Meeting Space	Based on final space allocation	Office accommodation for CGAs in Residential Zone.	Will be located at or adjacent to Residential Accommodation.		



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Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
	Bookable Team Office/Meeting Spaces	Based on final space allocation	Bookable Meeting Spaces for smaller CGA delegations.	Will be located within Residential Zone.		
	CGA Medical/Physiotherapy Spaces	Based on final space allocation	Medical and Physiotherapy Facilities for CGAs.	Will be located at or adjacent to Residential Accommodation.		
	Bookable Medical/Physiotherapy Spaces	Based on final space allocation	Bookable Medical and Physiotherapy Facilities for smaller CGA delegations.	Will be located at or adjacent to Residential Accommodation.		
	CGA Storage	Based on final space allocation	Storage facilities for CGAs.	Will be located at or adjacent to Residential Accommodation.		
	Resident Centres			Multiple resident centres will be located within the Village, each servicing 600-800 residents.		
	Reception/Front Desk	10	Resident centre reception desk.			
	TV Lounge	100	TV lounge for Village residents.	Should have TVs and seating for up to 40 residents at any one time.		
	Housekeeping Storage	25	Storage of linen and other housekeeping supplies.			
	Public Telephones	n/a				
	CGA Business Centre	50	Office facilities for CGAs, may substitute for CGA offices for smaller delegations.	Should accommodate fax, phone, printing and copying facilities.		
	Meeting Room	25	Meeting room for up to 10 people.			
	Laundry	100	Laundry facilities for residents, including washers and dryers.			
	Cyber Cafe	100	Internet stations for Residents.	Maximum 10 internet stations for each Cyber Cafe.		
	Games Room	50	Games Rooms within Residents Centres where required/appropriate.			
	Male Toilets	10				
	Female Toilets	10				



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Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
	CGA Services Centre					
	Reception	25	Reception and Waiting area for CGA Services Centre.			
	Transport Desk	10	Transport Information Services for CGAs.	Can be a desk in an open area near the reception/entry.		
	Finance and Rate Card Desk	10	Finance/rate Card Services for CGAs.	Can be a desk in an open area near the reception/entry. Safe also required.		
	Technology Desk	10	Technology Help Desk for CGAs.	Can be a desk in an open area near the reception/entry.		
	CGA Services Administration Offices	50	Minimum 3 offices for CGA Services Administration Staff.	Can be a single space sub-divided or 3 separate offices.		
	Meeting Room	75	General meeting room.	Should accommodate meetings for up to 20 people.		
	CGA Services Staff Work Area	50	Work Area for CGA Services Staff.	Can be open plan workstations, also should accommodate area for fax, printers, etc.		
	CGA Assistants Office	12	Office for CGA Assistants.			
	CGF Office	12	Office for CGF Staff.			
	Male Toilets	10				
	Female Toilets	10				
	Sport Information Centre					
	Reception	25	Reception and Waiting area for CGA Services Centre.			
	Transport Desk	10	Transport information for Athletes and Team Officials.	Can be a desk in an open area near the reception/entry.		
	Sport Information Desks	150	Information desks for Athletes and Team Officials.	Can be a desks in an open area, one desk/sport, potentially sharing of some sports.		
	Meeting Room	50	Multi-use meeting space.	Should accommodate meetings for 10-12 people.		
	Sports Entries Office	25				
	Results Production Office	25				
	Male Toilets	10				
	Female Toilets	10				



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Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
	Chef de Mission Meeting Room	300	Large auditorium style meeting space for Chef de Missions and CGAs.	Should accommodate up to 200 people.		
	Main Dining Hall	5000		Specific areas will depend on catering strategy and detailed design of all facilities.		
	Baggage Claim Area		Area for storage of bags and personal items.	Should be located at main entry to dining hall.		
	Dining Hall Seating		Seating area within the dining hall.	Should accommodate 33% of Village population.		
	Food Services		Services for hot and cold food.	Includes areas for cutlery, trays, etc.		
	Male Toilets		Front of house toilets for residents.			
	Female Toilets		Front of house toilets for residents.			
	Preparation Kitchen		Main preparation kitchen.	May be utilised for Casual dining area.		
	Dry Storage		Storage area for dry goods.			
	Refrigerated Storage					
	Waste Compound		Compound area external to preparation kitchen for all waste.			
	Loading Dock		Unloading of catering vehicles.	Should be located in close proximity to storage areas.		
	Staff Change Room-Male		Change facilities for catering staff.			
	Staff Change Room-Female		Change facilities for catering staff.			
	Catering Office					
	Casual Dining Hall	700		Specific areas will depend on catering strategy and detailed design of all facilities.		
	Baggage Claim Area		Area for storage of bags and personal items.	Should be located at main entry to dining hall.		
	Dining Hall Seating		Seating area in dining hall.	Should accommodate up to 200 people.		
	Food Services		Services for hot and cold food.	Includes areas for cutlery, trays, etc.		
	Male Toilets					
	Female Toilets					



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Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
	Preparation Kitchen		Main preparation kitchen.	May be shared with Main Dining Hall.		
	Dry Storage		Storage area for dry goods.			
	Refrigerated Storage					
	Waste Compound		Compound area external to preparation kitchen for all waste.			
	Loading Dock		Unloading of catering vehicles.	Should be located in close proximity to storage areas.		
	Polyclinic	1000	Health and Medical Services for residents of the Games Village.	Actual design and specification of Polyclinic to be determined by medical facility planner, areas are indicative only. Note that the scale of the Polyclinic is dependent on availability of high class medical facilities in close proximity to the Games Village.		
	Polyclinic Reception/Waiting Area	50		Waiting Area for up to 20 people.		
	Polyclinic Administration Offices	60 (3x20)				
	Pharmacy	90				
	General Outpatient Care Facilities	250				
	Emergency Care Facilities	250				
	Physiotherapy	50				
	Radiology Facilities	50				
	Laboratory Services	50				
	Dental and Optical Care Facilities	50				
	Podiatry	50				
	Medical Supplies Storage	30				
	Male Toilets	10				
	Female Toilets	10				
	Ambulance Waiting Area	25 each		Should be located directly adjacent to Polyclinic with discreet access to external road network through a BOH area.		
	Doping Control Centre	175				



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Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
	Waiting/Reception Area	100	Waiting/reception area for Athletes.			
	Processing Area	30	Based on three areas	Number of processing areas will depend on Athlete numbers.		
	Toilets	15	Based on three toilets	Number of toilets will depend on athlete numbers.		
	Office/Store	15	Lockable Storage Room/Office			
	Chaperone Waiting Area	15	Waiting Room for Chaperones			
	Recreational Facilities					
	Fitness Centre	600	Fitness Centre/Gymnasium for residents of the Village.	Should accommodate treadmills, weight stations, rowing machines and stretching areas.		
	Male Change Room	50		Should be located in close proximity to Fitness Centre.		
	Female Change Room	50		Should be located in close proximity to Fitness Centre.		
	Sauna – Male	10		Should accommodate up to 4 Athletes.		
	Sauna – Female	10		Should accommodate up to 4 Athletes.		
	Indoor Hall	2000	To be utilised for recreational and training purposes during the Games.		Multi-Use Indoor Sports Hall.	2000
	Swimming Pool	4500	To be utilised for recreational and training purposes during the Games.		8 lane 50m Pool.	4500
	Athletics Track	10000	To be utilised for recreational and training purposes during the Games.		Athletic track with permanent grandstand for 1,000 spectators.	10000
	Religious Centre	100	Multi-denomination facility to be utilised by Games Village residents.	Should be located in a quiet area of the Games Village.		
	Prayer Room	80				
	Storage	10				
	Male Toilet	10				
	Female Toilet	10				



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Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
Operational Zone						
	Athlete Transport Mall		Bus terminal for Athlete buses to all competition and training facilities.	Minimum 20 bus load zones required.		
	Bus Load Zone	25000				
	Transport Operations Centre	100	Offices for Transport operations.	Should be located within, or adjacent to, Transport Mall.		
	Access Control Point	50 (each)				
	Armoury	50	Storage for Athlete's guns, prior to re-location to Shooting venue by Athletes.	Should be located near to Transport Mall, outside secure perimeter of the Games Village, with 24 hour security.		
Village Accreditation Centre						
	Baggage Screening	100	Area for security screening of luggage, sports equipment, etc.	Number of x-ray machines dependent on peak demand. Adequate space required for queuing.		
	Access Control Point	100	Area for screening of personnel entering the Village.	Number of magnetometers dependent on peak demand. Adequate space required for queuing.		
	Accreditation Validation	50	Validation of accreditation passes.	Minimum 5 desks, space for queuing required.		
	Problem Resolution	150	Area for problem resolution, photography.	Minimum 15 desks, waiting area required.		
	Athlete Waiting Area	50				
	DRM Meeting Room 1	40	Meeting Room for team delegation Registration.	Should accommodate up to 20 people.		
	DRM Meeting Room 2	20	Meeting Room for team delegation Registration.	Should accommodate up to 10 people.		
	DRM Meeting Room 3	20	Meeting Room for team delegation Registration.	Should accommodate up to 10 people.		
	DRM Meeting Room 4	20	Meeting Room for team delegation Registration.	Should accommodate up to 10 people.		
	Sports Entries Office	20		If Sport Information Office is nearby, this space may not be required.		



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Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
	Village Allotment Office	20		If Village Management is nearby, this space may not be required.		
	Logistics/Freight Area	150				
	Left Luggage Area	75				
	CGA Parking	9000	Dedicated CGA Parking Area.	Space for 300 cars required.		
	Village Motor Pool	8700				
	Vehicle Parking	3000		Parking for 100 cars.		
	Vehicle Maintenance	2000	Covered 'garage' space for vehicle maintenance.			
	Vehicle Refuelling	2000				
	Drivers Lounge	200	Break area for bus drivers.	Will require catering service, can be serviced from Main Dining.		
	Male Toilets	10				
	Female Toilets	10				
	Bus Holding Area	1500	Holding area for minimum 10 buses.			
	Village Operations Centre					
	Mayors Office	25	Office for Village Mayor.			
	Village Managers Office					
	Village Management Work Area	240	Work Area for Village Management Staff.	Should accommodate 20 workstations, printer and fax facilities.		
	Village Communications Centre	50	Space for Radio Operators	Should accommodate up to 10 people in a meeting room format.		
	Food Services Office	10	Administration office for Catering Operations			
	Transport Operations Office	10	Administration office for Transport Operations			
	Meeting Room 1	50	Multi purpose meeting room	Meeting Room for 10 people.		
	Meeting Room 2	100	Multi purpose meeting room	Meeting Room for 20 people.		
	Male Toilets	10				
	Female Toilets	10				
	Security Command Centre					
	Security Commander Office	25	Office for Security Commander.			



2010 Delhi Venue Brief - Commonwealth Games Village

Appendix A - Functional Planning Schedule

EKS

Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
	Security Work Area	240	Open Plan work area for security personnel.	Should accommodate up to 20 people.		
	Briefing Room	150	Briefing area for up to 50 people.	Could utilise Chef de Mission meeting space if conveniently located.		
	CCTV Monitors	75	Area for monitoring of CCTV system.	Should accommodate wall of monitors and up to 10 staff.		
	Armoury	10	Space for weapons storage.	Should be a lockable space.		
	Communication Command Desk	20	Communication control desk within Security Command Centre			
	Staff Break Area	100	Break Area for security personnel.			
	Holding Cells	20	If required, 2 holding cells	Requirement to be confirmed by OC/Security authorities		
	Emergency Vehicle Parking Area	1000	Parking area for police, emergency vehicles.	Should be located adjacent to Security Command Centre.		
	Logistics Centre					
	Vehicle Screening Area	1000	Security Screening Area for vehicles entering Games Village			
	Vehicle Staging Area	500	Space for staging of large vehicles,	Should be located adjacent to the Logistics Warehouse		
	Logistics Warehouse	2000	Central warehouse for all goods deliveries to Games Village, must be covered.	Should be located in close proximity to vehicle access point, with direct BOH access throughout the Games Village.		
	Logistics Office	250				
	External Logistics Storage	2000	Open, uncovered storage area for logistics vehicles, maintenance equipment, etc.			
	Contractor Storage/Workshops	1000	Dedicate storage and workshop areas for site contractors	Area required will depend on OC policy for site management		
	Cleaning and Waste Compound	750	Compound for storage of waste and cleaning equipment for the venue.	Should have large vehicle access from venue perimeter.		
	Cleaning and Waste Office	30	Work area for Cleaning and Waste Manager and area for contractors.			
	Storage for Liquids and Detergents	20				



2010 Delhi Venue Brief - Commonwealth Games Village

Appendix A - Functional Planning Schedule

EKS

Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
	Equipment Storage	200	Storage for cleaning equipment and vehicles.			
	Waste and Recycling Containers	500	Containers for different waste streams.			
	Vehicle Staging Area	200	Area for manoeuvring, loading of large vehicles.			
	Technology Centre					
	Technology Management Office	20				
	Technology Work Area	240	Work Area for Technology Staff.	Should accommodate up to 20 people.		
	Communications Equipment Room	50				
	Technology Warehouse	1000	Storage for technology equipment, rate card, etc.			
	Workforce Centre					
	Workforce Check In	200	Check In and Check Out Facilities for all Workforce/.			
	Workforce Office	50				
	Workforce Briefing Area	100	General Briefing area for Workforce.	Should be located in a BOH area, could be shared with other constituents if convenient.		
	Workforce Satellite Break Areas	300 (100 each)	Workforce Break areas located conveniently throughout the Village, in each Zone.	Number of areas dependent on Village layout. It is anticipated that a minimum of 3 lounges will be required based on the overall area of the Village.		
	Male Change Rooms	100	Change Room for up to 25 people.			
	Female Change Rooms	100	Change Room for up to 25 people.			
	BOH Toilets	40 (each)	BOH toilets, dedicated male and female toilets required.	Could be shared by all BOH Workforce, dependent on Village layout , multiple locations may be required.		
	Workforce Dining Hall	2000		Specific areas will depend on catering strategy and detailed design of all facilities.		
	Baggage Claim Area		Area for storage of bags and personal items.	Should be located at main entry to dining hall.		



2010 Delhi Venue Brief - Commonwealth Games Village

Appendix A - Functional Planning Schedule

EKS

Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
	Dining Hall Seating		Seating area in dining hall.	Should accommodate up to 300-400 people.		
	Food Services		Services for hot and cold food.	Includes areas for cutlery, trays, etc.		
	Male Toilets					
	Female Toilets					
	Preparation Kitchen		Main preparation kitchen.	May be utilised for Casual dining area.		
	Dry Storage		Storage area for dry goods.			
	Refrigerated Storage					
	Waste Compound		Compound area external to preparation kitchen for all waste.			
	Loading Dock		Unloading of catering vehicles.	Should be located in close proximity to storage areas.		
	Housekeeping					
	Central Housekeeping Storage	1000	Central storage area for all housekeeping supplies, must be covered.	Should be located in close proximity to Residential Zone, in a BOH area.		
	Satellite Housekeeping Storage	50 (each)	Storage areas distributed through Residential Zone	Should be in close proximity to residential units, evenly distributed throughout the Residential Zone		
	Venue Utilities					
	Electrical Sub-Station	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Electrical Switch Room	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Building Distributor Room	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Distribution Board Cupboards	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Generator Compound(s)	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Fuel Storage	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Gas Supply Control Room	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		

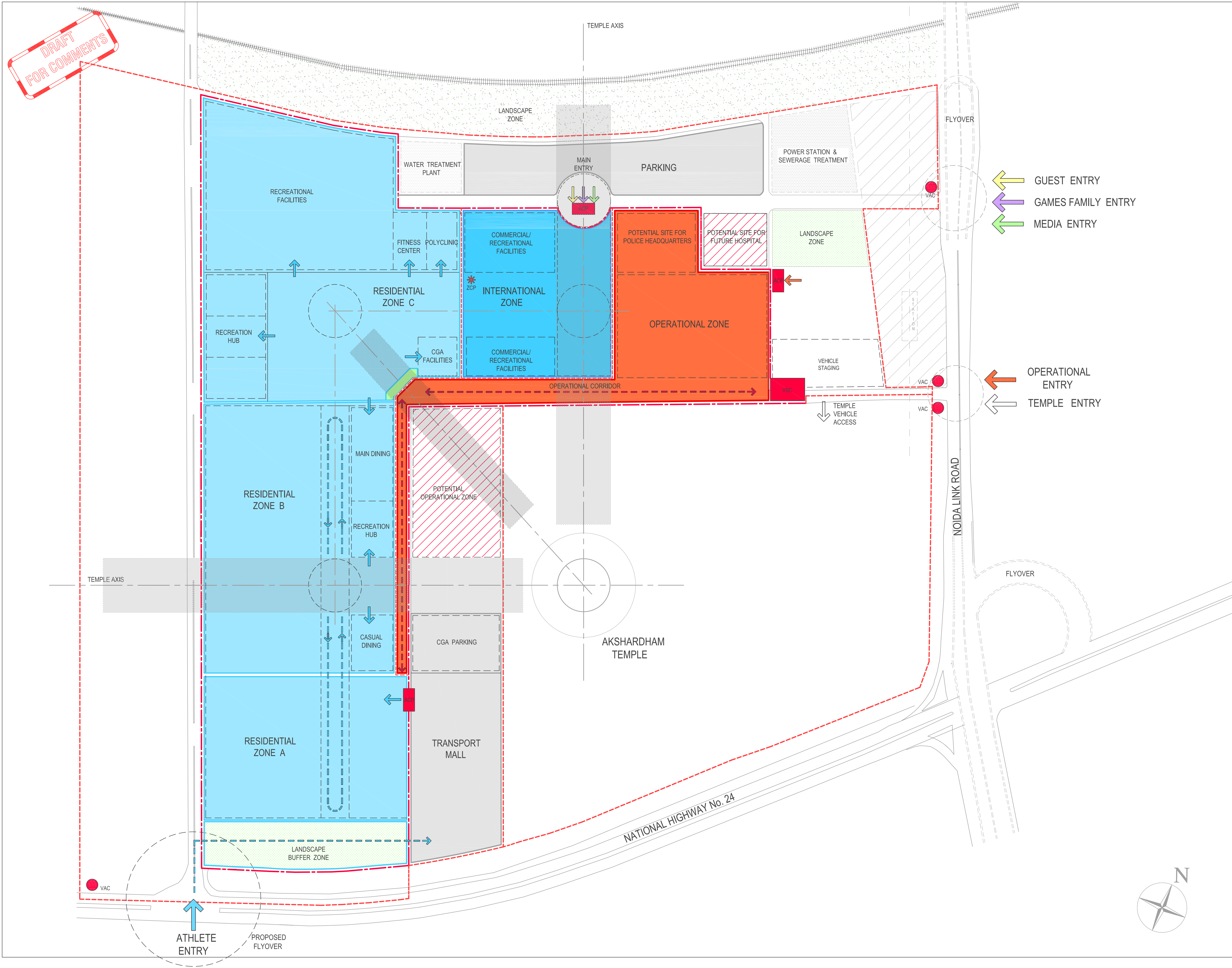


2010 Delhi Venue Brief - Commonwealth Games Village

Appendix A - Functional Planning Schedule

EKS

Code	Space / Sub-Space	Area (m2)	Description	Comments	Legacy Use (if applicable)	Legacy Area
	Filtration Plant Room	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Hydraulic Plant Room	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Water Storage	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Pump Rooms	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Water Supply Control Room	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Sewerage Control Room	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Mechanical Plant Room	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	PABX Room	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Communications Cupboards	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		
	Services Reticulation Space	To suit design	As required for a fully functioning Commonwealth Games venue.	Refer to Brief for requirements.		



REVISIONS		DATE

LEGEND

- OPERATIONAL ZONE
- INTERNATIONAL ZONE
- RESIDENTIAL ZONE
- TRANSPORT ZONE
- GUEST ENTRY
- GAMES FAMILY ENTRY
- MEDIA ENTRY
- ATHLETE ENTRY
- OPERATIONAL ENTRY
- ATHLETE FLOW
- OPERATIONAL FLOW
- VEHICLE ACCESS CHECKPOINT
- VEHICLE SECURITY CHECKPOINT
- ACCESS CONTROL POINT
- ZONE CHECK POINT
- SECURE PERIMETER
- ACCREDITATION PERIMETER

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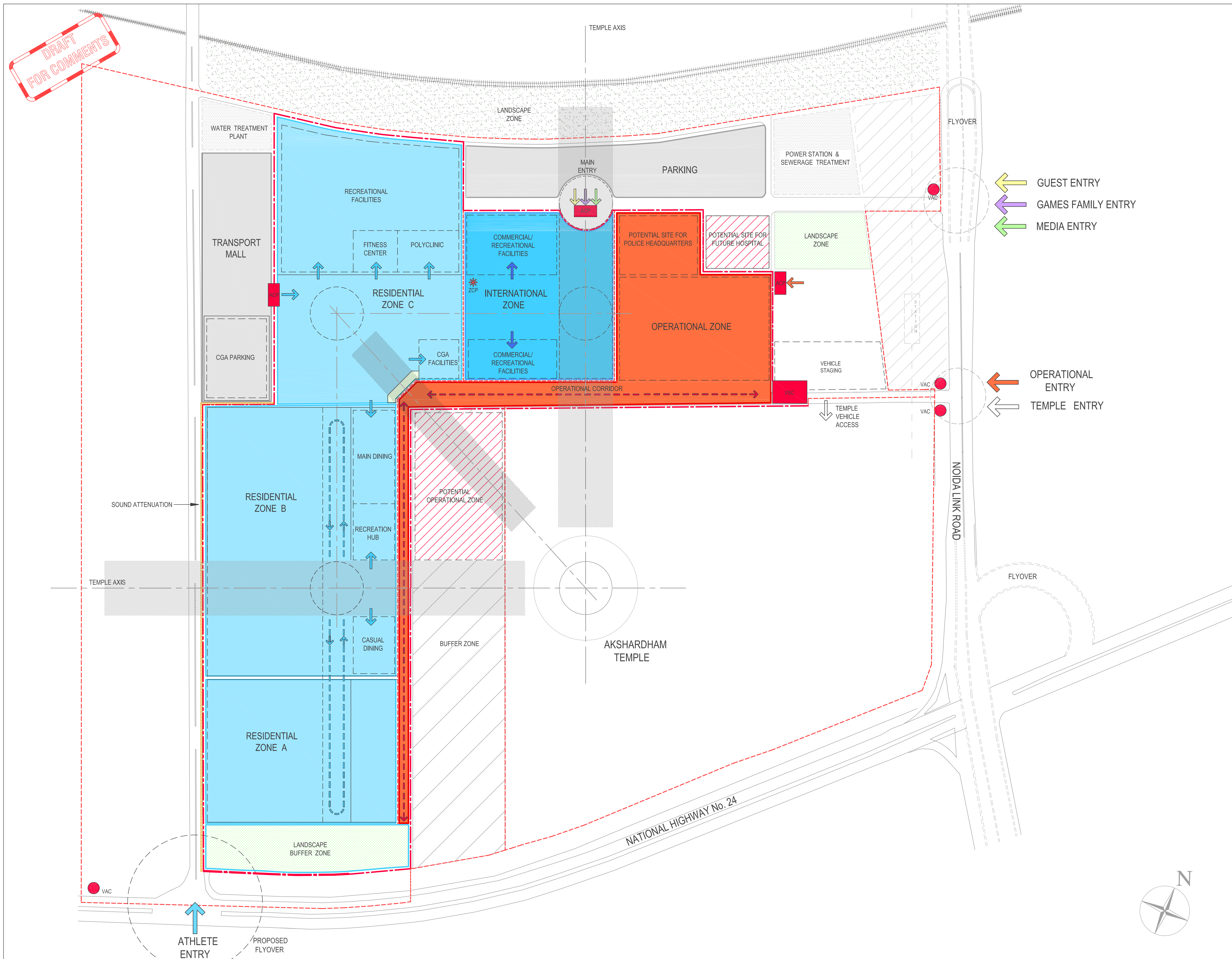
KEY PLAN

VENUE
COMMONWEALTH GAMES VILLAGE

TITLE
CONCEPTUAL PLAN
OPTION 1

DRG. NO. G. V. M.P-01	ISSUE A
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REVISIONS		DATE

LEGEND

- OPERATIONAL ZONE
- INTERNATIONAL ZONE
- RESIDENTIAL ZONE
- TRANSPORT ZONE
- GUEST ENTRY
- GAMES FAMILY ENTRY
- MEDIA ENTRY
- ATHLETE ENTRY
- OPERATIONAL ENTRY
- ATHLETE FLOW
- OPERATIONAL FLOW
- VEHICLE ACCESS CHECKPOINT
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- ACCESS CONTROL POINT
- ZONE CHECK POINT
- SECURE PERIMETER
- ACCREDITATION PERIMETER

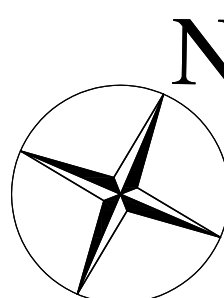
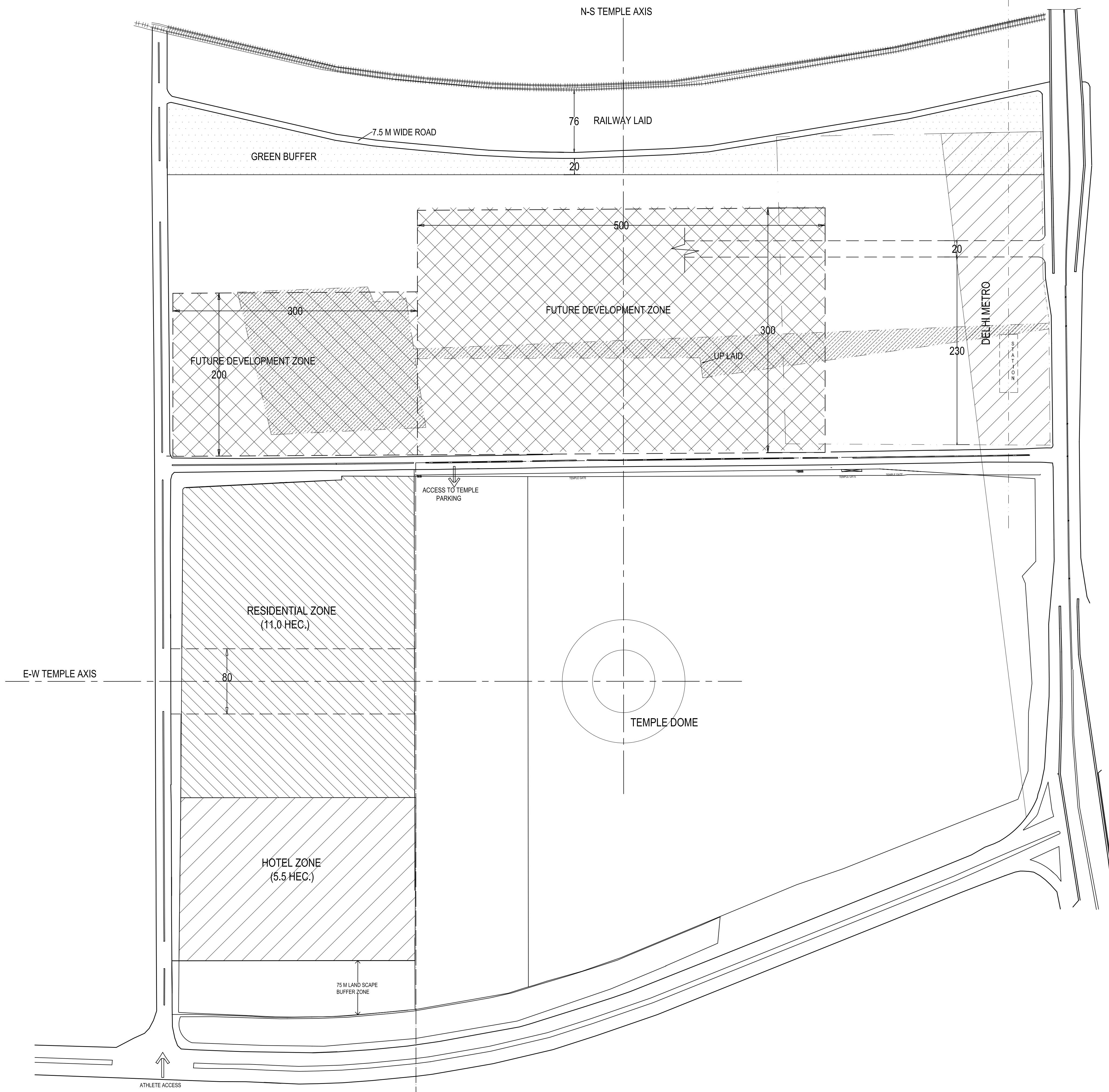
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KEY PLAN

VENUE
COMMONWEALTH GAMES VILLAGE

TITLE
CONCEPTUAL PLAN
OPTION 2

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DATE 10-10-06	SCALE 1:2500 at A1

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REVISIONS	DATE

LEGEND



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KEY PLAN

VENUE
COMMONWEALTH GAMES VILLAGE

TITLE	CONSTRAINTS PLAN
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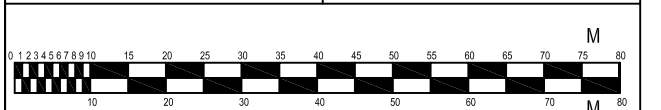
ISSUE
A

DATE.

10-10-06

SCALE

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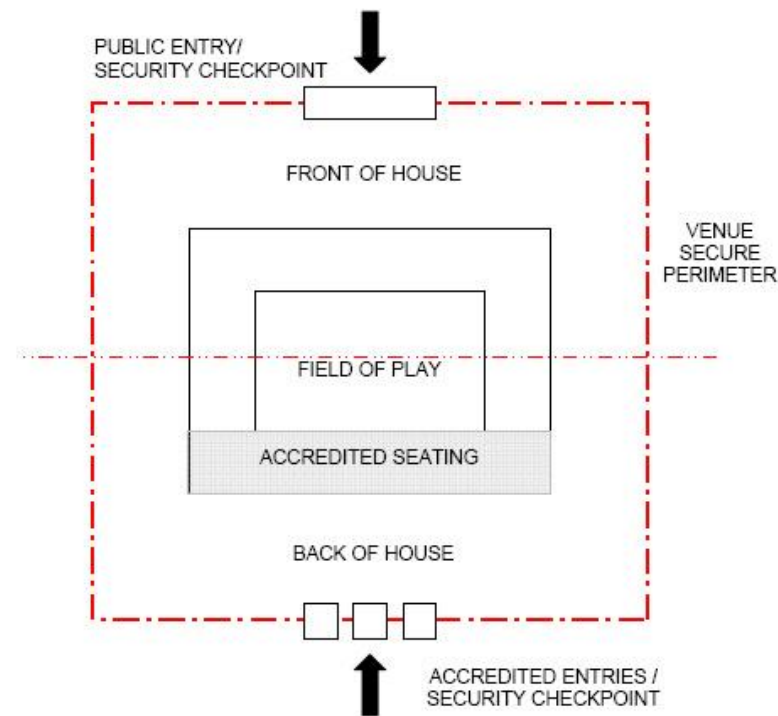
Venue Planning Principles

Appendix C - Venue Planning Principles

The following section outlines generic venue planning principles for Commonwealth Games competition venues. These principles should be applied to the design of all competition venues with consideration given to the utilisation of Overlay, where appropriate, to achieve the stated operational design principles. Broad planning principles for all venues are as follows:

- A requirement for clear separation of 'Front of House' and 'Back of House' activities
- Maintaining a secure perimeter to the venue (as defined through security planning policies for each Games)
- A requirement for minimising conflict between spectators and accredited groups within the venue
- A requirement for the separation of accredited constituents within the venue, avoiding flow conflicts in BOH areas
- A requirement for the development of planning to support key spatial affinities between Functional Areas

These stated planning principles apply to venues which are both 'stand alone' or within a precinct environment, though with respect to venues within a precinct it may not be necessary to implement the same level of security as would be required at a stand alone venue, assuming a secure perimeter has been established for the precinct.



Appendix C - Venue Planning Principles

Venue Planning Affinities

In respect to venue planning, the stated objective of the separation of constituents and their functions is a key requirement. At the same time, there are important affinities between individual Functional Areas and within constituent groups which must be considered and will affect the planning, and in particular will require the co-location of spaces which have significant operational impacts and reliance on one another.

The following section identifies the key constituent groups and Functional Areas and their affinities and planning principles. It should be noted that these diagrams do not define 'physical' planning arrangements but rather define planning principles between the defined spaces. The actual physical arrangement of spaces should be considered in the context of each specific venue, but should reflect the principles of the constituent affinity diagrams. In addition, it should be noted that the constituent planning principles do not attempt to define the requirements for all individual spaces listed in the 'Space Planning Schedules' section of this manual, but attempts to define key issues in support of generic venue planning principles:

Appendix C - Venue Planning Principles

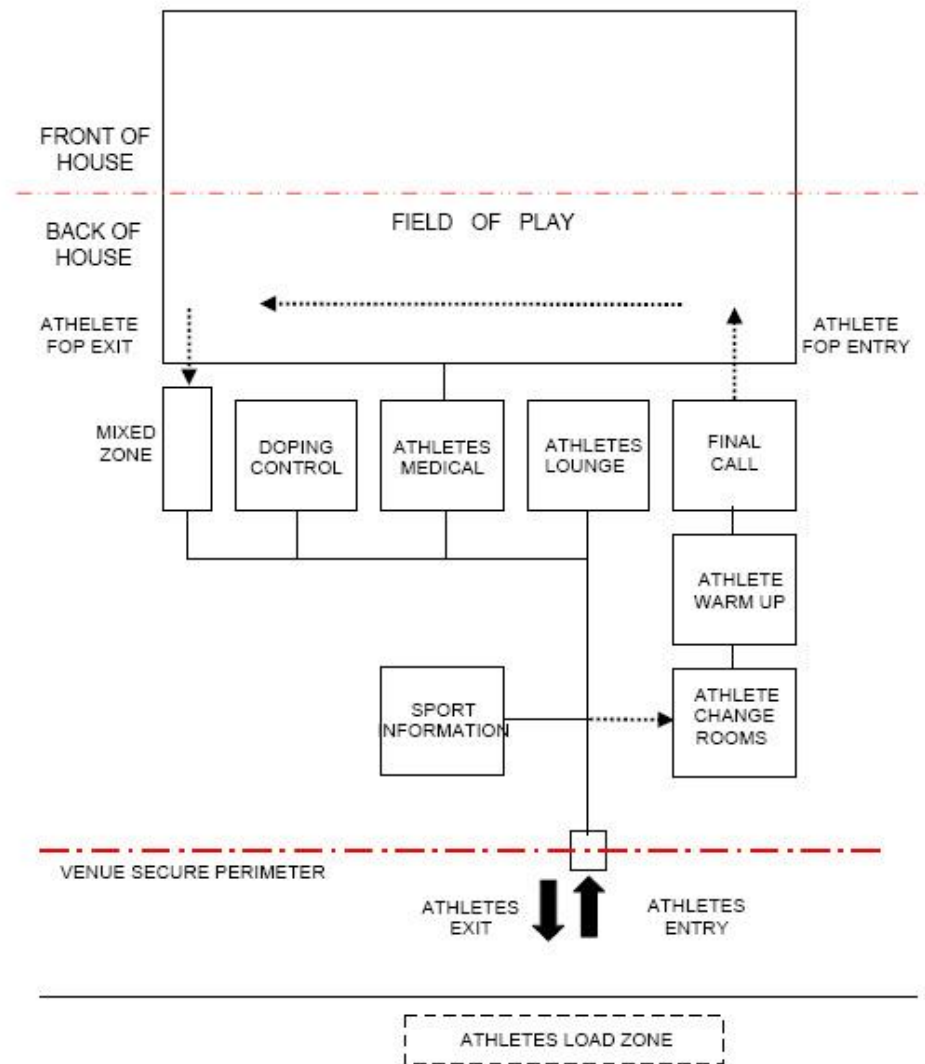
Athletes and Team Officials

Athletes and Team Officials will have dedicated spaces in a competition venue, including dedicated Athlete and Officials Entry, Athlete Change Rooms, Team Meeting Rooms, Athletes Lounge, Athlete Warm-Up, Equipment Storage and Field Of Play areas. In addition, depending on the venue there will be a requirement for 'sport specific' spaces as outlined in the Space Planning Schedule for each sport. Key generic planning principles for Athlete and Team Officials areas are as follows:

	Planning Principle	Affinities
	Athlete and Team Officials entry areas should be in a 'Back of House' zone, in close proximity to the Athlete Transport Load Zone and separate and discreet from all other entry areas, including other accredited entry points into the venue. The location of these entry areas will depend on the location of the venue perimeter and the security policy with respect to access for these constituents.	Transport, Security
	Athlete areas should be concentrated in a specific and contained 'zone' in the BOH area in order to avoid conflict with other constituents. Flow paths of other constituents through this zone should be avoided.	
	Athlete Change Rooms and Athlete Lounge facilities should be in close proximity to Athlete Entry, Warm-Up and FOP areas.	
	Planning should be undertaken to achieve a flow from Athlete Change Rooms through to Final Call/Athlete Staging and to Warm-Up and Field of Play areas.	
	Separate entry and exit for Athletes to the FOP should be achieved where possible.	
	The flow from the FOP to the post event area should pass through the mixed zone, where media should have separate access which does not conflict with Athlete flows.	Press, Broadcast
	Doping Control areas should be located in close proximity to Athlete facilities in the 'post event' area of the venue.	Doping Control

Appendix C - Venue Planning Principles

Athletes and Team Officials Planning Principles Diagram



Appendix C - Venue Planning Principles

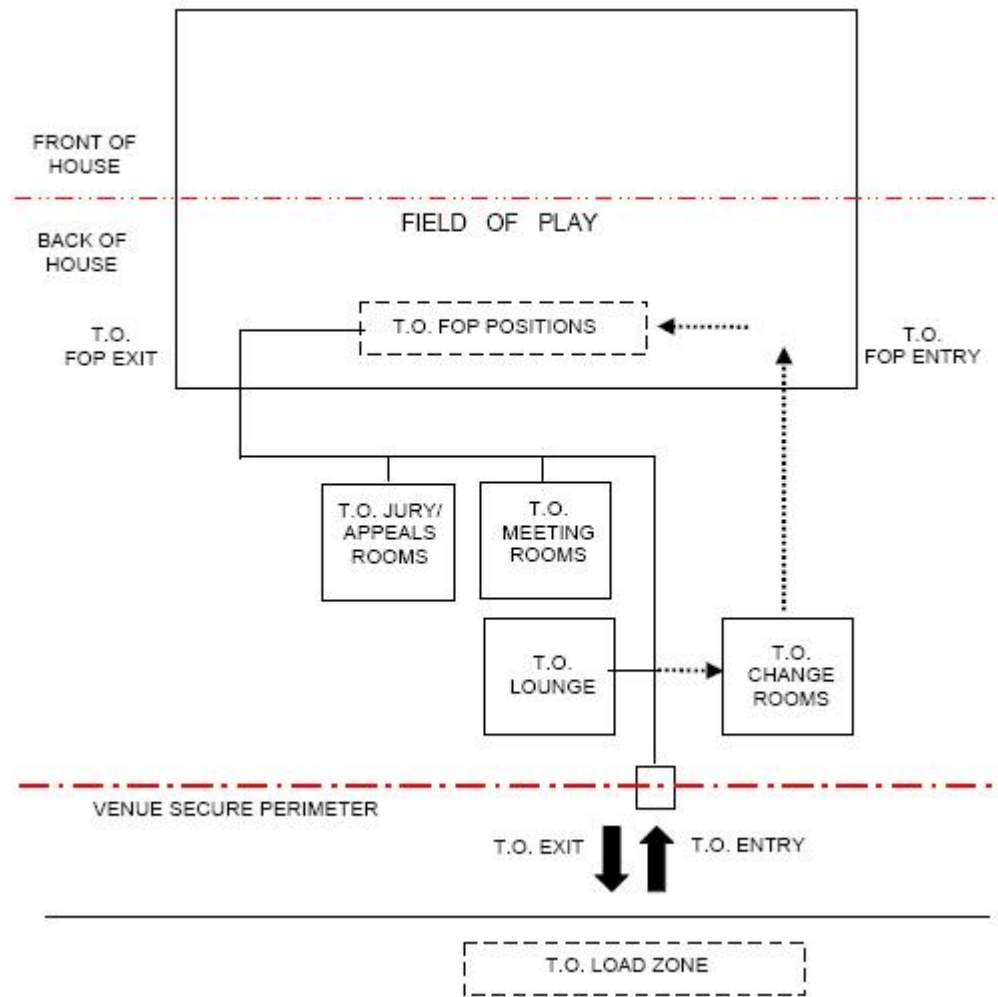
Technical Officials

Technical Officials areas will include Technical Officials Change Facilities (as required), Technical Officials Lounge, Meeting and Jury Rooms (as required), and designated Technical Officials locations on the FOP. Key planning principles for these areas are as follows:

	Planning Principle	Affinities
	Where possible, Technical Officials should have a separate and discreet entry to Athletes into the venue, though it should be located in a BOH area in close proximity to the designated Technical Officials Load Zone.	Transport, Security
	Technical Officials areas should be located in a designated 'zone' in the BOH area, and avoid conflict with Athletes and other constituents in the flow through the venue.	
	In some instances, FOP entry and exit can be shared with Athlete FOP entry as Technical Officials will generally move into the FOP prior to Athletes. Where appropriate to the sport, separate and discreet entry and exit to and from the FOP should be provided for Referees, Umpires, Judges, etc.	
	Technical Officials areas should be located in close proximity to IF areas and Competition Management areas.	

Appendix C - Venue Planning Principles

Technical Officials Planning Principles Diagram



Appendix C - Venue Planning Principles

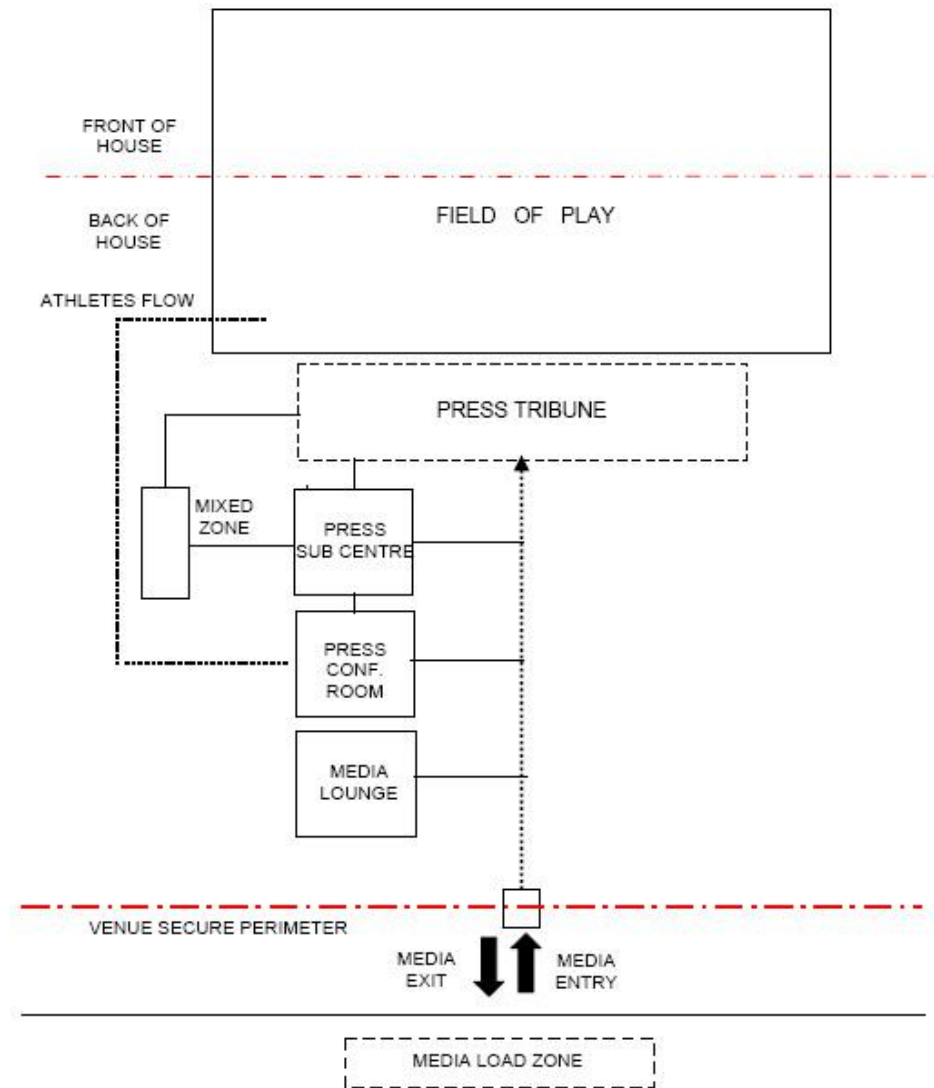
Press Operations

Spaces for Press Operations will include a dedicated Media entry, Press Sub-Centre (including Media and Photographers Workroom, Media Lounge and Office areas), a Press Conference Room, Press Tribunes and the Mixed Zone:

	Planning Principle	Affinities
	Dedicated Media entry (could be shared with Broadcast) in close proximity to Media Transport Load Zones, with direct access to the Press Sub-Centre without conflict with other constituents	Transport, Security
	Direct access from Media Sub-Centre to Media Tribune and Mixed Zone without conflict with other constituents	Sport
	Press Conference Room in close proximity to Media Sub-Centre and Tribune areas with separate and discreet access for Media/Broadcast and Athletes	Sport
	Press Tribunes in central location of the accredited seating stand, separate from CG Family and Athlete seating, adjacent to Broadcast seating	CG Family, Broadcast
	Photographers positions on or near the FOP with adequate sightlines to the competition	Sport

Appendix C - Venue Planning Principles

Press Operations Affinity Diagram



Appendix C - Venue Planning Principles

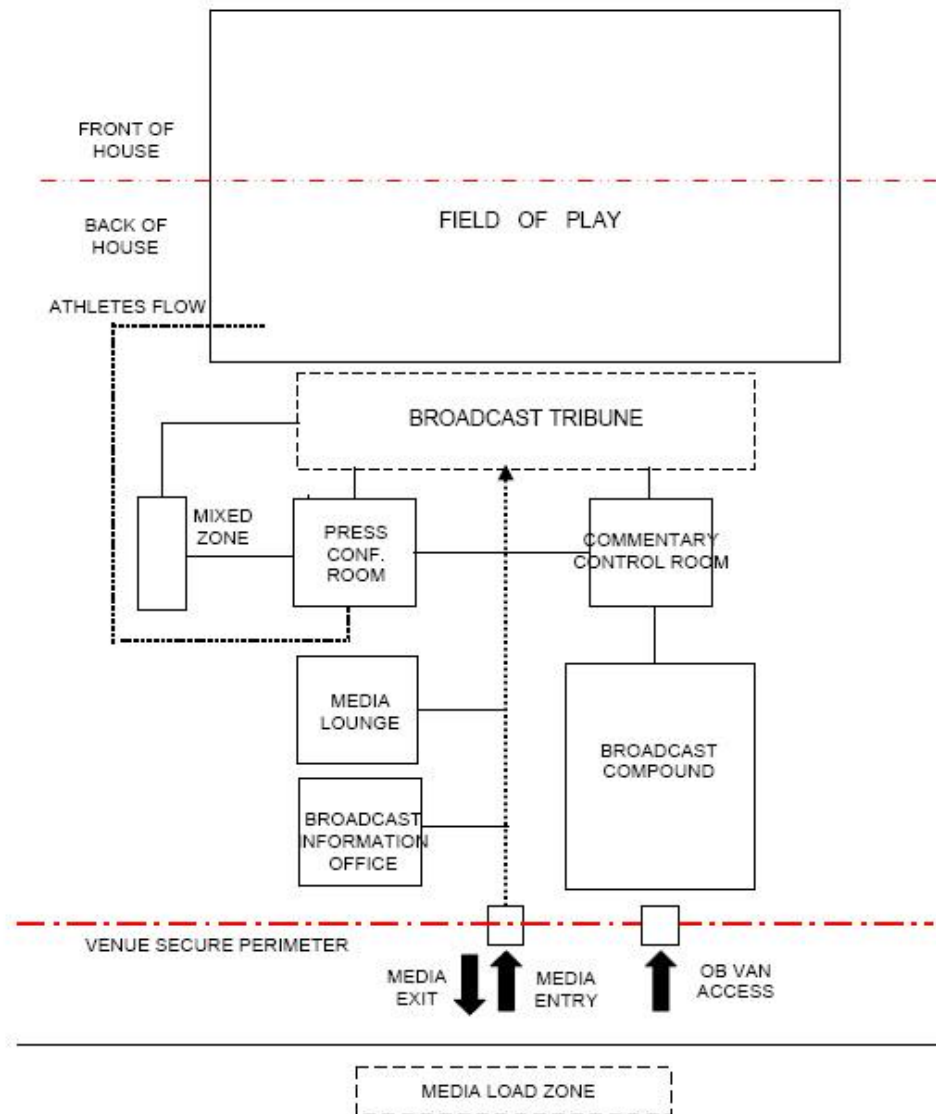
Broadcasting

Broadcast areas will include Broadcast Compounds, Broadcast Tribunes, Commentator Control Rooms, Camera platforms and the Mixed Zone. Key planning principles for Broadcast areas are as follows:

	Planning Principle	Affinities
	Dedicated entry into the venue (could be shared with Press) in close proximity to the Media Load Zone	Transport, Security, Press
	Broadcast compound within venue secure perimeter and in close proximity to Broadcast Tribune and Camera Platforms	
	Proximity and dedicated flow path to broadcast tribune positions from the compound	
	Proximity and access to key cable pathways to camera locations from compound	Technology
	Access for OB vans into the compound from Vehicle Screening Area (VSA)	Security, Transport
	Commentator Control Room in close proximity to Broadcast Tribunes	
	Dedicated access to Mixed Zone without conflict with other constituents	Press

Appendix C - Venue Planning Principles

Broadcasting Affinity Diagram



Appendix C - Venue Planning Principles

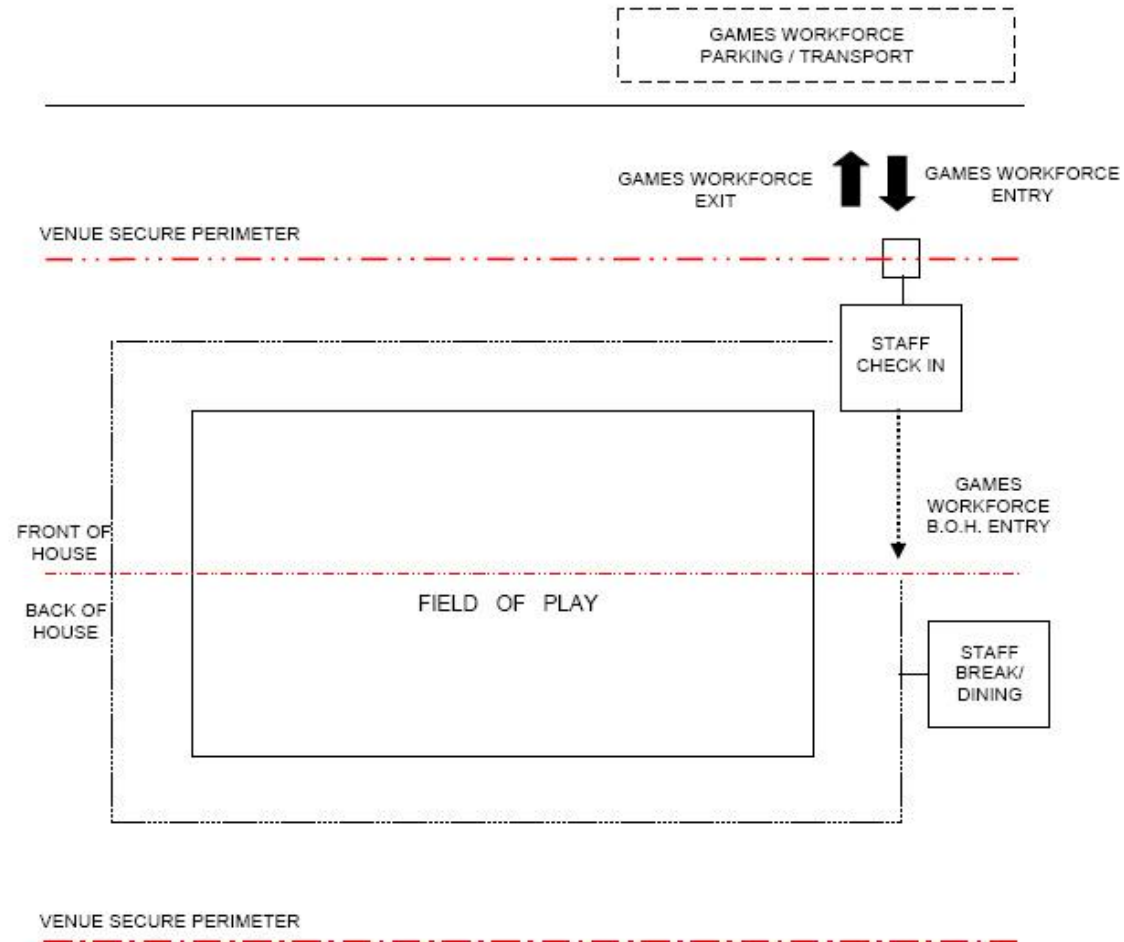
Games Workforce

Areas for Games Workforce will include Staff Check-In/Out and Staff Break areas. Key planning principles for Games Workforce spaces will include:

	Planning Principle	Affinities
	Location of Games Workforce Check-In on the venue/precinct perimeter with convenient access to Games Workforce transport terminals/parking areas.	Transport
	Dedicated Pedestrian Screening Area (PSA) for Games Workforce.	Security, Spectator Services
	Location of Games Workforce Check-In with convenient access to VAHO to facilitate problem resolution for Games Workforce.	Accreditation
	Location of Games Workforce Office within staff check-in/out area.	
	Central location for Games Workforce Break area with convenient access for all staff/contractors working in the venue, catering facilities to be provided as appropriate. Games Workforce Break area should be located so as to avoid conflict with other BOH areas.	Catering, All Functions
	BOH access routes from FOH area for Games Workforce as required.	Accreditation, All Functions

Appendix C - Venue Planning Principles

Games Workforce Affinity Diagram



Appendix C - Venue Planning Principles

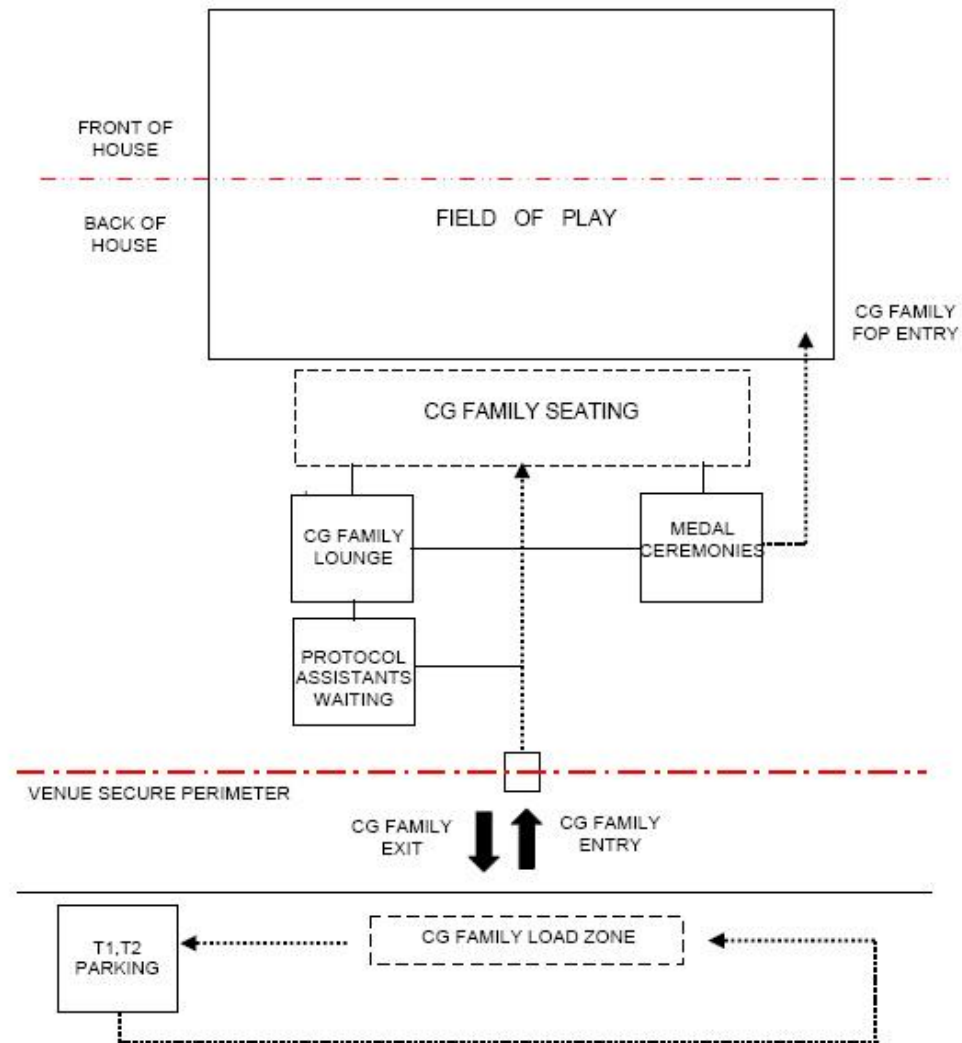
Games Family

The Games Family will have dedicated spaces including Games Family Entry, Games Family Lounge, Protocol Desk, and Games Family Seating. Key planning principles for Games Family areas are as follows:

	Planning Principle	Affinities
	Dedicated Games Family entry without conflict with other constituents.	Transport, Accreditation, Security
	Dedicated Games Family Lounge in close proximity to Games Family seating and Games Family Entry.	
	Dedicated Games Family seating area with optimal viewing to be located in accredited seating stand.	Press, Broadcast
	Dedicated parking area for Games Family car fleet in close proximity to Games Family Load Zone.	Transport

Appendix C - Venue Planning Principles

Commonwealth Games Family Affinity Diagram



Appendix C - Venue Planning Principles

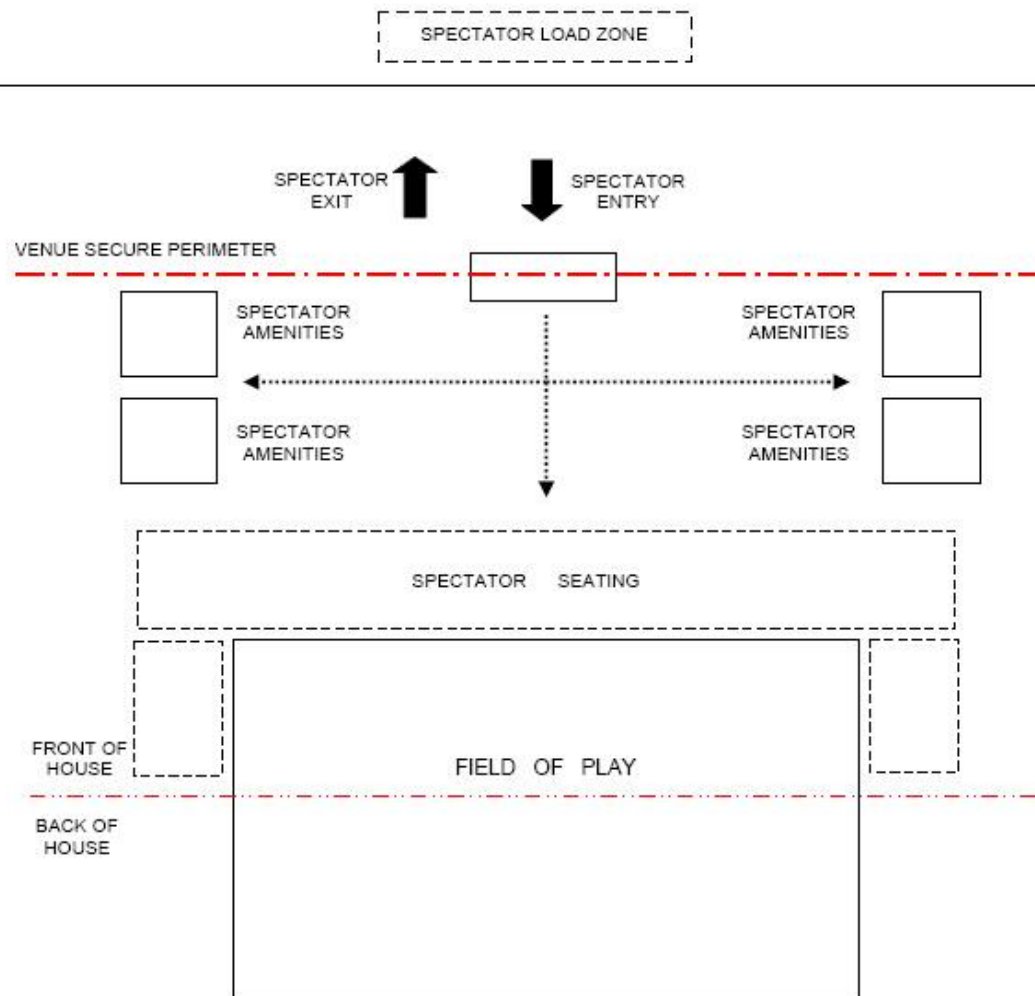
Spectators

Spectators will have dedicated spaces in the 'Front of House' area of the venue. These will include dedicated Transport Terminal(s), Security Entry Plazas, Concourses, Spectator Amenities (Merchandising, Catering, Toilets) and dedicated public seating areas. Key planning principles for spectator areas are as follows:

	Planning Principle	Affinities
	All spectator areas and pedestrian flows should be separate and discreet from accredited areas, without conflicting with accredited movements.	Spectator Services, Accreditation
	Spectator transport terminals should be located in a 'Front of House' area without conflicting BOH transport flows.	Transport, Spectator Services
	Spectator Entry Plazas should be sized appropriately based on crowd demand and should contain the necessary space for security screening and queuing.	Security, Spectator Services
	Catering, Merchandising and Toilets in the venue should be distributed in close proximity to public seating areas and allow for the maximum demand likely based on public seating capacity.	Catering, Merchandising, Spectator Services
	Dedicated public seating, concourses and stand access should be separate from all accredited seating zones.	Spectator Services, Accreditation, Ticketing

Appendix C - Venue Planning Principles

Spectators Affinity Diagram



Appendix C - Venue Planning Principles

Venue Operations

Venue Operational areas will include Venue Management offices, specific spaces for Accreditation, Catering, Cleaning and Waste, Logistics, Site Management, Security and Technology. Each of these FAs have specific space planning requirements, some general planning principles are as follows:

	Planning Principle	Affinities
	Venue Management areas (including the VOC and VCC) should ideally be co-located with Security operational areas, in particular the Security Command Centre and Technology Operations These areas should be in a BOH area, centrally located at the venue.	Venue Management, Security, Technology
	Compounds for Logistics, Cleaning and Waste, Catering and Site Management can be co-located and will need access for large vehicles, including space for manoeuvring. Vehicle access to all parts of the venue is required from these compound areas.	Logistics, Security, Transport, Catering, Cleaning and Waste, Look, Overlay
	Accreditation Centres should be located at the venue perimeter with access to all accredited entries, and in particular it should be located near to the Games Workforce entry.	Accreditation, All Functions
	Technology spaces will be required in critical locations near to the FOP (particularly Venue Results and Results Printing areas) and Technology Operations areas should be centrally located in a BOH area with cable pathways throughout the venue and to the FOP.	Sport, Technology, Press, Broadcast, Accreditation

Appendix C - Venue Planning Principles

Venue Operations Affinity Diagram

