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Introduction

Purpose

These Guidelines set out fundamental requirements for the design, development and/or procurement of office accommodation for lease or purchase by the State Government of Victoria and provide the basis for comparison and assessment of proposals.

Project Intent

To provide buildings which satisfy the accommodation requirements of the Victorian Government at the standard outlined in this specification or better at minimum cost.

Specification Intent

The purpose of this specification is to set forth the design and construction parameters which will ensure that the building and associated facilities are free from repair work for a minimum period of 25 years, or for the duration of the lease, to limit ongoing maintenance and to minimise running costs.

Scope

The Guidelines incorporate the following disciplines:

Element 1  Architectural Design
Element 2  Architectural Finishes
Element 3  Structural Design
Element 4  Civil Works
Element 5  Hydraulic Services
Element 6  Mechanical Services
Element 7  Electrical Services
Element 8  Fire Protection Services
Element 9  Lift Services
Element 10  Energy Management
Element 11  Security Systems
Element 12  Acoustics
Element 13  Information Technology
Element 14  Computer Networks
Element 15  Asbestos and Synthetic Mineral Fibre Management
Element 16  Quantity Surveying
Element 17  Building Certification
Information and Documentation

For assessment purposes the Proposer shall provide:

- one set of ‘as-built’ floor and ceiling plans on A3 size white paper at 1:200 scale without technical notes and dimensions.
- 3.5’ HD diskettes containing the above ‘as-built’ drawings in DXF format with supporting drawing register and DXF translation logs.

Government policies and guidelines

The Proposer is required to comply with the current editions of the following Government Policies and Guidelines:

- Victorian Government Office Accommodation Guidelines
- Victorian Government Purchasing Board Supply Policies and Guidelines
- Code of Conduct for the Building and Construction Industry
- Victorian Energy Efficiency Strategy
- Sustainable Energy Authority's Building Energy Brief
- Health and Safety in the Workplace
- Collection, Storage and Recycling of Waste Materials
- Management of Asbestos Products.
Element 1

Architectural Design

1.1 Building location

Location should provide:

- good public exposure
- ready access to public transport, services and utilities
- suitability of adjacent and joint tenancies
- suitability for the delivery of the tenant’s service to its customers.

1.2 Building types

For the purposes of these Guidelines new and existing buildings are classed as follows:

- Type 1a Located in Melbourne capital city precinct and intended for office use.
- Type 1b Located in metropolitan Melbourne and intended predominantly for office use.
- Type 1c Net rentable floor area greater than 2,000 m² and located in other major urban or rural centres with a population in excess of 50,000.
- Type 2 Net rentable floor area less than 2,000 m² predominantly for office use and located in smaller urban and rural centres with a population less than 50,000.
- Type 3 Special purpose building.

1.3 Building design

The building should reflect qualities of permanence and stability with consideration given to:

- flexibility of floor space for tenancy use
- maximum dependence on natural light
- minimum energy consumption
- disabled access and facilities.
Preferred building structure:

- reinforced concrete frame
- reinforced concrete slab floors
- metal deck roof
- framed plasterboard internal walls
- suspended ceiling.

1.4 Planning module

Preferred structural grid is approximately 7.8-8.4 metres with sub-module multiples of 300 mm and 600 mm.

Planning module should:

- provide flexible space
- correlate floor, ceiling and other sub-modules
- minimise relocation of services during fitout.

1.5 Accommodation standards

The following accommodation may be required:

- **Public space**
  - entrance foyer with reception area
  - lift lobbies
  - waiting areas
  - public toilets.

- **Office space**
  - open plan office areas and individual offices
  - communications and equipment rooms
  - interview, meeting and conference rooms
  - areas for compactus storage.

- **Service deliveries, loading and storage**
  - easy access for normal range of commercial and service vehicles
  - loading dock with direct access to lift facilities in Type 1 buildings
  - storage area for recycling and waste bins.
• **Staff amenities and service areas**
  - toilets for each sex on all floors
  - showers
  - tea room with sink, under bench boiling water and chilled filtered water unit and storage cupboards on each floor. On large floors provide additional facilities with proximity to conference rooms and meeting rooms
  - rest room in Type 1 buildings with a nominal area of 6 m² and fitted with basin and window blinds
  - adequate cleaners room with sink and storage facilities on each floor
  - disabled toilet and shower.

• **Ceiling heights**
  - ceiling height generally over office space 2,700 mm minimum
  - ceiling heights in foyer and reception areas 3,000 mm minimum
  - ceiling heights in service areas 2,400 mm minimum
  - Note bulkheads below 2,400 mm will generally not be accepted.

• **Parking**
  - internal or external secure car parking as set out in the attached table
  - sheltered bicycle park with provision for locking points.

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Parking Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1a</td>
<td>By arrangement</td>
</tr>
<tr>
<td>Type 1b</td>
<td>3.5 bays / 100 m² rentable floor area</td>
</tr>
<tr>
<td>Type 1c</td>
<td>3.5 bays / 100 m² rentable floor area</td>
</tr>
<tr>
<td>Type 2</td>
<td>3.5 bays / 100 m² rentable floor area</td>
</tr>
<tr>
<td>Type 3</td>
<td>Dependant on the requirements of the architectural facilities brief</td>
</tr>
</tbody>
</table>

### 1.6 Provisions for people with disabilities

The *Disability Discrimination Act* must be taken into account for all Victorian Government Property Group (VGPG) projects.

Refer Advisory Notes on Access to Premises (Human Rights and Equal Opportunity Commission), RD97/01 Provisions for People with Disabilities (Australian Building Codes Board), Australian Standard (AS) AS 1428 (all parts) and the Building Code of Australia (as amended).
1.7 Building area efficiency

When measured in accordance with the Property Council of Australia method of measurement the following minimum Net Rentable Area (NRA) to Gross Floor Area (GFA) should be achieved:

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Minimum Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1a,b &amp; c</td>
<td>75%-80% for total building, 80%-85% for typical floor</td>
</tr>
<tr>
<td>Type 2</td>
<td>80%-85% for total building</td>
</tr>
<tr>
<td>Type 3</td>
<td>Dependent on requirements of Architectural Facilities Brief</td>
</tr>
</tbody>
</table>

1.8 Quality assurance

Work on new buildings, alteration to existing buildings and fitouts shall be executed in accordance with AS 2990–1987, Quality Systems for Engineering and Construction Projects and the Proposer shall:

- Ensure compliance with the quality system requirements.

1.9 Durability

The Proposer may provide an evaluation of Life Cycle Costing over the projected life of the building or the lease period. Life cycle costing shall include energy, maintenance and all other running costs.

Specific areas for consideration are:

- building fabric (internal and external)
- building engineering services
- identify separately building owner / lessors costs.

1.10 Asbestos / hazardous materials

The owner / developer must ensure that the building does not contain any asbestos or other hazardous materials.
Element 2

Architectural Finishes

2.1 Scope
Where a Proposer intends to provide for fitout to a new building or offer the use of an existing fitout, the finishes and fittings shall generally be as described in this section of the Guidelines.

The requirements stated are a guide only.

2.2 General standard
Finishes must:

- comply with the relevant statutory authorities’ codes and requirements
- comply with the requirements of Standards Australia as applicable
- be appropriate for the intended application with particular reference to health and safety
- be consistent with good quality rather than prestige office accommodation.

2.3 Typical finishes

External wall cladding

- External wall cladding to the building may include, but is not necessary limited to: brickwork, rendered masonry, rendered cement sheet, pre-cast concrete, steel, glass.
- More than one cladding material is acceptable.
- Any material used must meet the requirements of Element 3 – Structural Design.
- Any material used must be maintenance free for the term of the lease in the case of a leased building, or be maintenance free for 25 years in the case of a building built for or sold to the Victorian Government.

Roofing and roof plumbing

- It is generally expected that the roofing provided will be in the form of metal decking. Where an alternative system is proposed, full details of the performance, warranties and guarantees for the system shall be provided for approval.
The design of the entire roofing system, including rainwater goods must be such that the roof remains permanently weatherproof.

Provide adequate means of dealing with vapour pressure, condensation, corrosion and thermal movement.

Support equipment loads, access walkways and roof access without impairment to performance.

Provide a minimum thermal resistance of R 3.0. For metal deck roofs use insulation blanket supported on double sided foil or use foil bonded to an insulation blanket.

Metal deck roofing must be a minimum of 0.48 mm base metal thickness.

Where roof can be overlooked, or where required by any Authority, Colorbond metal decking is to be used. Elsewhere use Zincalume. Use only one finish on a building.

Aluminium windows, doors and screens

It is expected that external windows and doors will be framed with approved commercial grade aluminium alloy sections. It is expected that internal glazed screens will be framed with approved commercial grade aluminium alloy sections. Aluminium sections are to be finished with a selected anodised or powder-coated finish.

The design of the exterior glazing must be such that the building remains permanently weatherproof.

Frames are to be designed so as to meet the structural loads applied to them. Proof of the structural sufficiency must be supplied.

Glazing

Thickness of glass shall be determined by the size of the frame and the exposure conditions in accordance with AS 1288 – Installation of Glass in Buildings.

A minimum of 10.38 mm thick laminated safety glass is to be used for internal partitions, join vertically with silicone rubber compound.

Selection of external glazing must take into account the requirement for general energy efficiency and be selected so as to minimise the requirement for air conditioning.

Mirrors to be fabricated from 6 mm thick mirror backed float glass, adhered to 12 mm thick moisture resistant medium density fibreboard, edged with 18 x 18 mm aluminium angle on all sides. Aluminium angle to be powder–coated to selected colour and to have mitred corners. Use concealed fixings to attach to wall.

Window furnishings

Windows to be fitted with Luxaflex Slimline Shades or approved equivalent as follows:

external windows, new slimline venetian blinds to a selected colour
• internal glazed screens, new slimline venetian blinds to a selected colour
• internal and external doors are not to be fitted with blinds.

Metal stud partitions

• Partitions running parallel to external glazed walls are to be fully glazed. Thickness of glass shall be determined by the size of the frame and the exposure conditions in accordance with AS 1288 – Installation of Glass in Buildings.
• A minimum of 10.38 mm thick laminated safety glass is to be used for internal partitions, join vertically with silicone rubber compound.
• Selection of external glazing must take into account the requirement for general energy efficiency and be selected so as to minimise the requirement for air conditioning.
• Mirrors to be fabricated from 6 mm thick mirror backed float glass, adhered to 12 mm thick moisture resistant medium density fibreboard, edged with 18 x 18 mm aluminium angle on all sides. Aluminium angle to be powder coated to selected colour and to have mitred corners. Use concealed fixings to attach to wall.
• Partitions running at right angles to external glazed walls which do not form a division between adjacent spaces are to be part glazed / part metal stud.
• Minimum stud width shall be 64 mm. Increase as required for height of partition and acoustic rating required.
• Partitions to be installed full height generally. Doors to be installed full height up to 2,700 mm. Where doors are lower than full height provide a matching painted rebated flush panel above.
• Partitions shall be installed with proprietary powder-coated metal trim sections including door frames, head sections, junction sections, skirtings, etc. Provide samples and details for approval.
• Provide acoustic sealant strips between; tops of partition walls and ceilings, sides of partitions and masonry walls, abutting partitions.
• Where possible install partitions over carpet.
• Acoustic rating of full height partitions:
  - generally partitions are to have a minimum acoustic rating of STC 41
  - partitions around interview, meeting and conference rooms are to have a minimum acoustic rating of STC 48
  - partitions around plant, communications and equipment rooms must provide sufficient sound attenuation so that the adjacent spaces have the equivalent minimum acoustic conditions as required for offices or conference/meeting rooms as the case may be.

Internal wall finishes

Generally line with plasterboard, fibre cement sheet or hard plaster to suit location. Plaster facing to masonry or concrete surfaces to be solid plaster or drywall plasterboard.
• **Plasterboard**
  - 13 mm thick gypsum plasterboard to AS 2588
  - recessed edges for flush jointing.

• **Solid plaster**
  - multiple coat application to AS C 27
  - nominal overall thickness 16 mm.

• **Fibre cement sheet**
  - 6 mm or 9 mm thick Villaboard fibre cement sheet depending on location and usage
  - recessed edges for flush jointing
  - use in wet areas and as a substrate for ceramic wall tiles on stud walls.

### Tiling

Floor and wall tiling shall be to the following minimum extent.

• **Toilets** Ceramic wall tiles to 1,200 mm on all walls, ceramic floor tiles throughout, proprietary cove tiles where floor and wall tiles meet.

• **Shower areas** Ceramic wall tiles to full height on all walls, ceramic floor tiles throughout, proprietary cove tiles where floor and wall tiles meet.

• **Tea rooms** Ceramic wall tiles to 300 mm above sinks etc. where no overhead cupboards provided and to underside of overhead cupboards where provided, Ceramic floor tiles or sheet vinyl throughout.

• **Foyers** Ceramic floor tiles throughout.

• **Porches** Ceramic or quarry floor tiles with matching step treads where required.

• **Ramps** Ceramic or quarry floor tiles with matching step treads where required.

• **Steps** Ceramic or quarry floor tiles with matching step treads where required.

Floor and wall tiles shall be to the following minimum standard.

• Ceramic wall tiles generally to be 150 x 150 mm or 100 x 200 mm Johnson tiles or equivalent approved manufacture.

• Internal floor tiles generally to be 200 x 200 mm Granito F series or equivalent approved manufacture.

• External floor tiles generally to be 300 x 300 mm Granito QC series or equivalent approved manufacture.

• Grout colour to match tiles and to be sealed.

• Provide matching colour silicone sealant to vertical jointing at internal corners.
Cabinet making

Where supplied, custom made built in cupboards, benches, shelving units shall conform to the following standard.

- All materials shall be new and shall be the best of their kind.
- Timber shall be kiln dried reconditioned Victorian Mountain Ash (KDRHW) dressed on 4 sides.
- Particle board shall be Laminex moisture resistant craftwood. Work surfaces shall be a minimum of 32 mm thick. Shelving to be a minimum of 25 mm thick. Carcass to be 18 mm thick with full backs.
- Laminates. Work surfaces shall be 0.8 mm thick postformed to substrate. Splashbacks shall be 1.2 mm thick hand bonded to substrate. All visible surfaces shall be Lamiwood with matching PVC edge strip to all sides of drawer fronts and doors. Internal surfaces shall be white melamine.
- Hardware. Stock pattern brass pintols shall be used for adjustable carcass shelving. Hinges shall be first quality concealed type cupboard hinges which will provide a long and trouble free service life. Handles shall be 100 mm wide satin chrome ‘D’ pulls. Lockwood 600 series lever cupboard locks shall be fitted to all drawers and doors.

Ceilings

Suspension systems and ceiling linings are to generally comply with the requirements of AS 2785 and as follows:

- Suspension system
  - screw-up metal suspension system for flush jointed plasterboard.
  - exposed grid metal suspension system for removable ceiling panels.
  - exposed suspension members and trim to be factory painted.
  - suspension system should be capable of height adjustment.
- Plasterboard
  - 13 mm thick gypsum plasterboard to AS 2588 or 10 mm unispan.
  - recessed edges for flush jointing.
- Acoustic tiles
  - removable mineral fibre tiles or panels.
  - when tested to AS 1530.3 the Fire Hazard Indices to be not greater than Ignitability = 0, Spread of Flame = 0, Heat Evolved = 0 and Smoke Developed = 3.
• **Special linings**
  Approved materials to suit locations and user requirements.

• **Acoustic insulation**
  Ceilings over fully enclosed interview, meeting, conference, plant, communications and equipment rooms to have a 50 mm sound insulation blanket to entire ceiling and 1,200 mm beyond partition wall.

**Broadloom carpet**

• Thoroughly prepare the concrete floor. Fill any holes, grind off any lumps and smooth the surface with Ardur K 15 or Ardit, etc. to ensure a suitable surface.

• Install carpet over Monoslab underlay. Underlay is to be adhered to the prepared substrate. Carpet is to be adhered to the underlay. Install carpet with bars at transitions between carpet and other floor finishes.

• Minimum carpet specification to be:
  – heavy duty, anti-static broadloom
  – pile fibre 100% wool or 80/20 wool/nylon mix
  – pile weight 1,640 grams/m\(^2\)
  – average pile height 6 mm
  – when tested to AS 1530.3 the spread of flame index should be not greater than 0 and the smoke developed index should be not greater than 5.

**Carpet tiles**

• Thoroughly prepare the concrete floor. Fill any holes, grind off any lumps and smooth the surface with Ardur K 15 or Ardit, etc. to ensure a suitable surface.

• Minimum carpet tile specification to be Feltex 100% Antron XL rubber backed carpet tiles.

**Vinyl flooring**

• Thoroughly prepare the concrete floor. Fill any holes, grind off any lumps and smooth the surface with Ardur K 15 or Ardit, etc. to ensure a suitable surface.

• Minimum vinyl specification in general use areas to be Armstrong Nylex Contract Interior range or equivalent approved.

• Minimum vinyl specification in wet areas to be Altro safety flooring D 25 or equivalent approved.
Painting

Unless otherwise noted all materials must be premium grade paints (not trade paints).

- One brand of paint only may be used for the entire job. (e.g. one of Dulux, Taubmans, Bristol, Wattyl or British Paints)
- All preparation, type of paint and number of coats of each type is to be in accordance with the manufacturers recommendation.
- Preparation of surfaces, painting systems. This specification is to be taken as a minimum statement of requirements

<table>
<thead>
<tr>
<th>Surface and Location</th>
<th>Preparation</th>
<th>Painting system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plasterboard walls in all areas except wet areas</td>
<td>Stop-up and sand smooth</td>
<td>1 coat Dulux trade acrylic sealer/undercoat, 2 coats Dulux Wash and Wear Flat Acrylic</td>
</tr>
<tr>
<td>Plasterboard ceilings in all areas except wet areas</td>
<td>Stop-up and sand smooth</td>
<td>1 coat Dulux trade acrylic sealer/undercoat, 2 coats Dulux Wash and Wear Flat Acrylic</td>
</tr>
<tr>
<td>Wet area plasterboard walls and ceilings</td>
<td>Stop-up and sand smooth</td>
<td>1 coat Dulux oil-based undercoat, 2 coats Dulux Wash and Wear Semi-gloss Acrylic</td>
</tr>
<tr>
<td>*Timber trim, Architraves and door frames, etc</td>
<td>Sand smooth and fill as required</td>
<td>1 coat Dulux oil-based undercoat, 2 coats Dulux Semi-gloss enamel</td>
</tr>
<tr>
<td>*Flush panel doors</td>
<td>Sand lightly</td>
<td>1 coat Dulux oil-based undercoat, 2 coats Dulux Semi-gloss Enamel</td>
</tr>
<tr>
<td>Internal steel beams, columns, etc</td>
<td>Remove all rust and mill scale Sand smooth</td>
<td>1 shop coat Dulux ROZC rust inhibiting primer, 1 site coat Dulux ROZC rust inhibiting primer, 2 coats Dulux High Gloss Enamel</td>
</tr>
<tr>
<td>Galvanised steel beams, columns, etc</td>
<td>Degrease with mineral turpentine</td>
<td>1 coat Dulux – 2 pack etch primer, 2 coats Dulux High Gloss Enamel</td>
</tr>
<tr>
<td>Cement sheet soffit linings etc</td>
<td>Stop-up and sand as necessary</td>
<td>1 cost alkali resistant sealer, 2 costs Weathershield Low Sheen Acrylic</td>
</tr>
</tbody>
</table>

*Note where Craftwood is used adopt the following specification: 1 coat Dulux Weatherprime Acrylic Wood Primer, 2 coats Dulux Super Enamel High-Gloss Enamel

Dulux brand paints have been called-up for the sake of specification convenience.

An alternative brand may be used provided that the painting systems are equivalent to the Dulux Systems listed.
Work stations

Submit details of proposed proprietary workstations for approval.

- Screens shall generally be 1,200 mm high, 50-75 mm thick.
- System shall be steel framed with exposed steel components in selected powder-coat finish
- All panels shall be fabric covered.
- System shall have adjustable feet to ensure level assembly.
- System shall have a skirting mounted cable duct.

2.4 Typical areas

Internal lobbies and public space

- floors: carpet or special non-slip finish
- walls: glazed tiles, specialised paint coatings or other good quality linings
- ceilings: specialised lighting integrated with ceiling design
- signage: provision for signage and provision of directory boards.

General office space

- floors: carpet generally. Vinyl or other non-slip covering in special usage areas
- walls: painted plaster
- ceilings: acoustic tiles prefinished.

Toilets, tea rooms etc

- floors: non-slip ceramic tiles or non-slip vinyl
- walls: glazed ceramic tiles to a minimum of 1.2 m
- ceilings: painted plasterboard.

Plant rooms and service areas

- floors: applied non-slip, low maintenance coating
- walls: paint finish
- ceilings: paint finish or to specific user requirements.
Internal car parks and loading docks

- floors: non-slip floor sealer
- walls: unpainted
- ceilings: unpainted.
Element 3

Structural Design

3.1 General requirements

The building structure, including facades, shall comply with the Building Regulations, the Building Code of Australia, and all relevant Australian Standards and Codes of Practice, with respect to:

- stability
- strength
- serviceability
- durability
- fire resistance.

3.2 Design loadings

Codes

The design loadings for the building shall comply with the following Australian Standards, including all amendments:

- AS 1170.1 SAA Loading Code, Part 1: Dead and Live Loads and Load Combinations
- AS 1170.2 SAA Loading Code, Part 2: Wind Loads

Live loads

Minimum design live loads shall be as follows:

- Office floors – General live load 4.0kPa
- Allowance for demountable partitions 1.0kPa
- Total 5.0kPa
• Compactus areas 12.0kPa
• Computer equipment areas 5.0kPa
  (Exclusive of weight of access flooring)
• Air handling plant rooms, refrigeration rooms. 7.5kPa
  Boiler plant rooms

Compactus areas shall not be less than 5% of the office accommodation area on each floor, and shall be clearly identifiable.

Dead loads

A minimum dead load allowance of 0.3 kpa for ceiling and services is required for all office floors.

Special purpose buildings

For special purpose buildings, additional requirements may be specified in separate technical briefs.

3.3 Deflection limitations

Long and short term deflections of building elements shall:

• not exceed the deflection limitations specified or recommended in the relevant Australian Standards
• not result in damage or cracking to walls, ceilings and supported services
• be compatible with the installation and operation of plant and equipment, including compactus installations
• not adversely affect occupant comfort
• not result in roof ponding.

3.4 Constructional tolerances

The building shall have adequate movement joints in structural and architectural elements to cater for the affects of:

  – shrinkage
  – creep
  – temperature variations
  – moisture variations
  – deformations under load
  – foundations movements.
Floor slabs shall:
- not deviate by more than 6 mm below the straightedge, when a 3 m long straightedge is placed on the floor slab in any position
- have a maximum variation from datum level not exceeding ± 25 mm.

The building owner shall apply a levelling product to floors that do not meet this standard so as to achieve the standard.

Inter-storey lateral drift of the building under loadings must not exceed 1/500 of the storey height.

3.5 Weather-tightness and control of moisture entry

The building envelope, including facades, sealants and tanking membranes, shall be weather-tight. Occupied basements shall have suitable tanking and drainage systems, which prevent moisture penetration.

3.6 Vibration

Vibration of the structure due to plant, equipment, vehicular traffic and pedestrian traffic must be within limits that will not adversely affect the structure, occupant comfort and operation of equipment.

3.7 Non-conforming products & materials

Products and materials which do not conform with current Australian Standards may be accepted if sufficient supporting information is provided. The information shall include:
- satisfactory testing and reporting by an independent accredited testing authority
- a written statement from the manufacturer confirming the product's suitability for the purpose
- warranties.
Element 4

Civil Works

4.1 Stormwater drainage system

Roof stormwater drainage system should be capable of withstanding a storm intensity of a one in one hundred year storm for box gutters and a one in twenty year storm for eave gutters. All roof gutters should be provided with overflow facilities.

The roof storm drainage system should provide for the collection of surface runoff from carparks, access roads, forecourts, ramps and other external areas including landscaping areas by way of entry pits and/or grated pits. The pipe drain system should provide for a minimum of 1 in 10 year storm event with overland flow paths away from buildings for flows in excess of this storm event. Where overland flow paths cannot be provided the pipe drain should provide for at least a 1 in 50 year storm event.

Where required, a pumped system be installed to provide for a 1 in 100 year storm event with connection to a suitable pipe drain system for areas which cannot be drained by way of a gravity system. If damage to the building could result from failure of the pump, a dual pump installation should be provided.

4.2 Regulations & standards

The storm system should conform with the requirements of local authorities and to the following regulations, standards and design documents.

- AS 2180 Metal Rainwater Goods – Selection and Installation
- AS 3500.3 National Plumbing and Drainage Code.
Element 5

Hydraulic Services

5.1 Water supply

The following water supply system would normally be required:

- mains pressure water supply reticulation to all fixtures plant and equipment
- where mains pressure is inadequate, a duplicate pumping system servicing upper level storage tanks with gravity feed to upper level fixtures
- capacities of water supplies and water storage and make up systems should be sufficient to cater for peak period demand
- an allowance of 30% capacity is suggested for additional fixtures in fit out works
- pressure in hot and cold water systems should be similar.

5.2 Fire hydrant & hose reels

Fire hydrant and hose reel service as required by the Building Code of Australia, inclusive of all amendments applicable at the date of submissions.

5.3 Sanitary plumbing and drainage

All plumbing fixtures and fittings should be of proven quality and design, concealed pipework, cisterns isolating valves, etc shall have access panels for maintenance.

Flexibility should be available in the pipe sizing and layout for the connection of fixtures in tenancy areas.

Taps and outlets should be vandal proof and chrome plated.

Taps over kitchen sinks and have basins to include aerators and showerheads to be AAA rated for water use.

Toilet groups will have accessible isolation valves on hot and cold water.
5.4 Regulations and standards

The hydraulics installation and facilities shall conform to the requirements of local authorities and to the following regulations, standards and design documents:

- AS 3500, Parts 0,1,2,3,4 and 5  National Plumbing and Drainage Code
- Selection and Sizing of Copper Tubes for Water Piping Systems - The Institute of Plumbing Australia,

5.5 Energy efficiency

The installation shall comply with Energy Efficiency Victoria – Building Energy Brief for Commercial and Public Buildings.
Element 6

Mechanical Services

6.1 Maintenance and servicing

The following maintenance facilities and details would normally be required:

- Access for maintenance and servicing of all systems and equipment including:
  - air conditioning and ventilation ductwork and terminal equipment
  - cooling and heating piping
  - electrical and controls cabling and equipment.
- Incorporate additional space for any future capacity requirements. Masonry shafts may be used for return air - not supply air
- Access facilities such as:
  - fully sealed doorways
  - services risers to be accessed from circulation corridors (not from office areas)
  - access through ceilings to service all items of equipment.
- Equipment schedules including:
  - cooling, heating, air handling and pumping equipment
  - energy performance details and source of supply
  - age and condition of each item of equipment and ‘balance of life’ remaining
  - maintenance schedules including servicing intervals
  - maintenance records and service report forms.
- As installed documentation including:
  - as built drawings
  - testing and commissioning results including settings of all items of equipment
  - operating and maintenance manuals
  - descriptions systems and equipment including operating procedures.
- Energy management records including:
  - last 12 months billing data for all fuels
  - energy management plan and procedures
  - energy/service documentation.
6.2 Quality

Installation will be evaluated against specific criteria including:

- design integrity
- reliability
- durability
- flexibility of fit out
- ease of maintenance.

Indicate the quality systems in place to assure the quality of design, maintenance, and construction – refer Element 1.8 – Quality Assurance.

6.3 Indoor air quality

To maintain acceptable levels of indoor air quality, measures associated with the mechanical services would normally include:

- cleaning of all equipment and ducted systems. State methods and extent of cleaning proposed.
- air filters installed to the following minimum criteria:
  - Type 1 Buildings
    - Deep bed dry media filters or electrostatic precipitators and precipitators and pre-filters to the following minimum efficiencies in accordance with AS 1234
    - No.1 Dust: Minimum peak efficiency 30%
    - No.2 Dust: Minimum peak efficiency 98%
    - No.3 Dust: Minimum average efficiency 81%
  - Type 2 Buildings
    - Built up air handling units shall be provided with deep bed filters as per Type 1 buildings
    - Packaged air conditioning units shall be provided with high quality panel filters to the following minimum efficiencies in accordance with AS 1132
    - No.2 Dust: Minimum arrestance efficiency 90%
    - No.4 Dust: Minimum arrestance efficiency 70%
  - Type 3 buildings
    - Air filters shall be installed according to the project brief.

- No leakage between filters and filter frames.
- Provision of air filter pressure differential instrumentation.

Separation between outside air intakes and exhaust shall comply with the requirements of AS 1668. Where cooling towers are used careful consideration shall be given to location of cooling towers in relation to outside air intakes and adjoining properties to minimise risks associated with legionella.
A building health audit be carried out in accordance with the procedures set out in the
document *Managing Indoor Air Quality* by the Property Council of Australia prior to
the conclusion of any contract agreements.

### 6.4 Standards and regulations

The mechanical services installation will be required to conform with the following
standards and regulations:

- **AS 1132** Air Filters for Use in Air Conditioning and General Ventilation
- **AS 1668.1** Fire and Smoke Control
- **AS 1668.2** Mechanical Ventilation for Acceptable Indoor Air Quality
- **AS 1670** Automatic Fire Detection and Alarm Systems - System Design, Installation and Commissioning
- **AS 3666, Parts 1 & 2** Air Handling and Water Systems of Buildings - Microbial Control
- **AS 3000** Wiring Rule
- **AS 3439.1** Low Voltage Switch Gear And Control Gear Assemblies.
- **AS 4254** Ductwork for Air Handling Systems in Buildings.
- **Sustainable Energy Authority** - Building Energy Brief for Commercial and Public Buildings
- **Building Code of Australia**
- **Property Council of Australia** - *Managing Indoor Air Quality*
- **Victorian Health (Infectious Diseases) Regulations 1990, S.R. No. 85/90.**
- **Victorian Service and Installation Rules.**

### 6.5 Design parameters

(a) **For air-conditioned buildings.**

The mechanical services installation would normally be designed on the basis of the following parameters:

- Design of fitouts should comply with the current edition of the Property Council of Australia’s guidelines.
- Indoor temperature settings - nominally 22.50C + 1.50C.
• Humidity Control – not required unless specified in the project brief.

• Equipment heat loads.
  – Lighting: Office/Work areas – installed lighting load plus 30% or 20 watts per m$^2$ whichever is the greater.
  – Foyers, lobbies and services areas - installed lighting load + 10%
  – Office equipment: Type 1 buildings – 40 VA per m$^2$ of net lettable floor space.
    Type 2 buildings – 30 VA per m$^2$ of net lettable floor space
    Type 3 buildings – according to the project brief.

• Occupant loads – one person per 15 m$^2$ of net useable floor area in office areas. In other areas, densities shall be as set out in AS 1668, Part 2. Ventilation rates shall be in accordance with the requirements of AS 1668.

• Minimum supply air volumes shall be calculated from the room sensible heat – a 10% safety factor shall be included for future flexibility.

• Domestic hot water shall be generated by either gas fired domestic hot water unites or electric water heaters; where a central heating hot water plant is provided consideration should be given to the use of domestic hot water calorifiers.

• Chilled drinking water shall be chilled to between 70C and 160C for distribution and consumption. Controls shall be set between 100C and 130C.

(b) For naturally ventilated or mixed mode buildings

The above design parameters do not preclude the provision of naturally ventilated or mixed mode buildings with their consequent benefits to occupant productivity and lower running costs. The proposer of a naturally ventilated or mixed mode building must establish that the design of the building will provide comfort conditions to satisfy occupants needs throughout the year. Such evidence could be based on document performance or on computer simulations using validated modeling programs.

6.6 Mechanical services systems

The following mechanical services systems would normally be required:

• air conditioning systems
• ventilation systems.

In addition, mechanical services systems are also deemed to incorporate:

• smoke control facilities
• domestic hot water generation
• chilled drinking water facilities.
Together with other particular facilities as may be required by the particular project brief.

Testing and Commissioning – Procedures for testing and commissioning of mechanical services systems shall comply with the requirements of the American Society of heating and Refrigeration and Air conditioning Engineers Guideline 1–1989 – \textit{Practices for Measurement, Testing, adjusting and Balancing of Building Heating, Ventilation, Air Conditioning and Refrigeration Systems}. Note that the requirements of these documents incorporate activities from commencement of design to final system handover.

The requirements of the above documents shall also be applied to other building services systems, in so far as they are relevant.

Wherever interaction occurs between the operations of various systems a multi-disciplinary approach to the testing and commissioning shall be adopted so that fully integrated operation of all facilities is attained.

6.7 Air handling systems

- Air intakes and exhausts shall be located to accord with the requirements of AS 1688, Part 2.

- Economy cycles shall be provided for all ‘central air handling plant’ installation and also should be considered for ‘floor-by-floor’ plant in Type 1 buildings.

- Separately controlled zones shall be incorporated in perimeter areas for each face and corner and in interior areas for each 250 m$^2$ of net useable floor space or part thereof and where required due to special use or differing loading densities.

- Facilities shall be provided to permit ‘after-hours’ operation of individual floors or sectors of very large floors.

- Air handling system installations shall comply with the requirements of AS 1668, Part 1.

- Plant-rooms shall not be used as air plena.

6.8 Cooling plant

- Cooling plant capacity shall be selected to match 100% of the full peak load calculated for summer design conditions.

- Central cooling plant would normally comprise a minimum of two refrigeration machines and two heat rejection units. A low load reciprocating machine shall be provided, to allow operation down to 5% of the total installed refrigeration capacity. Where the design cooling load for one individual floor or major occupancy zone is less than 50% of the capacity of one refrigeration unit, one ‘additional small load’ unit shall be included.

- Where traditionally used refrigerants are utilised, provision shall be made to convert to refrigerants with low or zero ozone depletion factors in compliance with
the Montreal Protocol and emerging standards without reduction to design capacity.

- Central refrigeration equipment plant-rooms shall be separate from other plant areas with provision for ventilation and monitoring to ensure operational safety at such time as new generation refrigerants are introduced into the equipment.

- Where packaged type air-conditioning units are used, these shall be of the dual compressor type with a minimum of two steps of cooling. Plant-rooms housing packaged units shall be provided with separate ventilation facilities.

### 6.9 Heating plant

- Heating plant shall generally be gas fired. Electrical heating may be proposed, subject to a favourable Life Cycle Costing comparison with gas fired plant and compliance with the energy performance requirements of these Guidelines.

- Heating plant shall be sized to maintain specified space conditions in the absence of internal loads and to accommodate morning warm up requirements. For Type 1 Buildings, the maximum warm-up period should be two hours; for Type 2 Buildings, the maximum warm up period should be one hour. Refer to the project brief for Type 3 Buildings.

- Where central heating plant is installed, a minimum of two boilers shall be provided.

- Domestic hot water heating shall not be derived from the main building heating plant.

### 6.10 Water circulation systems

Water circulation systems shall be provided with dual pumps. Piping shall be arranged for substantial ‘self-balancing’ supplemented with local balancing valves to each network sector and item of equipment. Isolating valves shall be provided to allow servicing of each item of equipment.

Pump impellors shall not be larger than 85% of full size.

### 6.11 Controls

Automatic controls shall be provided to maintain space temperatures and economical operation of all systems and equipment and shall be configured as follows:

- Type 1 Buildings – automatic controls and monitoring facility should be based on a direct digital control (DDC.) network having distributed intelligence which is linked to a Building Automation System (BAS).

- Type 2 Buildings – electronic controls complete with facilities for both automatic and manual starting and stopping of systems and equipment.

- Type 3 Buildings – provide automatic controls to suit the project brief.
Integrate the operation of the mechanical services, fire protection systems and communication facilities.

6.12 Electrical installation for mechanical services

Mechanical services switchboards shall be complete with switchgear, motor starters and control components and power and control wiring.

Mechanical services switchboard shall be type tested to prospective fault levels and shall be provided with segregations appropriate to the size and capacity of the installation. Provision for 20% spare capacity should be provided.

All necessary protective and other devices shall be provided. Power and control wiring shall be run separately and shall be enclosed in conduits, in plant-rooms and other exposed locations. Elsewhere wiring shall be run on cable trays.

Motor starters shall generally be ‘Direct-on-Line’ except where reduced voltage starters are recommended by equipment manufacturers, required by supply authorities, or required by good practice.

Electric motors below 22.0 kW shall be provided with Type 1 protection in accordance with AS 3947.4.1. For electric motors larger than 22.0 kW Type II protection shall be provided in accordance with AS 3947.4.1.

The entire circuitry and motors shall be sized to drive pumps and fans at 100% of their rated duty and the installed design flow.

Discrimination protection shall be provided throughout the installation.

All fan motors should be fitted with variable speed drives where applicable.

Pulsing submeters should be installed in mechanical services switch boards (MSSB) and connected to BAS to facilitate energy management of energy cost divestment.

6.13 Water treatment

Ensure that water treatment facilities are provided to all water circulation and distribution systems to meet the requirements of the controlling standard and regulations including AS 3666 and the Health (Infectious Diseases) Regulations 1990, SR No. 85/90.

In addition, procedures for operation and maintenance of these facilities shall be set down in the manuals provided.
6.14 Facilities for computer room and other special area air conditioning equipment

Tenancy fitouts may require separate condenser water units or additional chilled water allowance for the above areas including:

- up to 100% redundancy
- valve connections to each floor
- 24 hour 7 days per week operation.

Indicate flow rates and flow and return temperatures allocated to tenants for such systems.

6.15 Noise control

Recommended design sound levels within buildings shall be designed in accordance with satisfactory sound levels detailed in accordance with AS 2107.

External noise levels shall comply with the requirements of the Environmental Protection Act.
Element 7

Electrical Services

7.1 Scope

The electrical services as applied to building shall include the following:

- source and security of electrical supply
- switchboards and submains distribution
- capacity and extendability of the electrical supply and distribution components
- general purpose power installation
- internal and external lighting installation
- emergency and exist lighting
- electrical cabling support and accommodation facilities.

7.2 Standards

The electrical services installation and facilities shall conform to the requirements of the latest issues of the following standards and subsequent amendments:

- AS 3000. Electrical Installations – Buildings, Structures and Premises
- AS 3008.1 Cables for Alternating Voltages up to and including 0.6/1.0 Kw.
- AS 3439.1 Low Voltage Switchgear and Control Gear Assemblies. Type tested and partially type-tested assemblies.
- AS 1680  Interior Lighting:
  - Part 1  General Principles and Regiments
  - Part 2.0 Recommendations for Specific Tasks and Interiors
  - Part 2.1 Circulation Spaces and Other General Areas
  - Part 2.2 Office and Screen-Based Tasks
  - Part 2.3 Educational and Training Facilities
- AS/NZS 2293. Emergency Evaluation Lighting for Buildings
  - Part 1  System Design, Installation and Operation
7.3 Design parameters

- **Electrical loadings – Office areas**
  Allowance shall be made for the following minimum loadings when designing/assessing the physical and electrical capacity of the supply and distribution facilities:
  - **Lighting:** Full load of lighting installation plus 30%
  - **General Power.**
    - Type 1 Buildings – 40 VA m\(^2\)
    - Type 2 Buildings – 30 VA per m\(^2\)
    - Type 3 Buildings – as specified in the project brief.

- **Interior lighting illuminance**
  Interior lighting installation shall generally comply with the relevant requirements of AS 1680. Particular attention shall be paid to the specific requirements for screen-based office areas, educational and training facilities and circulation spaces and other general areas, each covered by separate parts of the standard.

- **Electromagnetic interference**
  Computer equipment, communication facilities, video display units, sensitive electronic control systems, etc., shall be located away from the immediate vicinity of high power carrying conductors and plant including:
  - high voltage substations
  - high voltage cabling
  - large mains and submains cabling or busducting.

7.4 Electrical supply

- **Capacity**
  Proposers shall be responsible for arranging the supply of electrical power and for complying with all requirements of the supply authority. The capacity of the supply shall be not less than 130% of the initial design load of the fully developed building.
• **Stand–by capacity**
  Type 1 buildings shall generally have an on-site stand-by electrical power generation facility having a minimum capacity which is sufficient to maintain in operation during any period of loss of mains power all essential services, plus 50% lighting, 50% of lifts and all air handling systems.

• **Power factor**
  Power factor connection facilities shall be provided to satisfy the requirements of the Distributor and the Consumption Tariff.

• **The Victorian Government has negotiated a tariff with a selected Electricity Supplier.**
  The proposer shall liaise with the supply authority in order to select the most economical tariff based upon the expected profile of use and the size of the load. The proposer shall provide a copy of the analysis of the tariff options, which has led to the selection of the tariff chosen.

• **Metering**
  Provision shall be made to install separate metering and meter reading and reporting system to meet anticipated tenancy sub-divisions. The Victorian Government will advise proposers in the project brief of the particular metering arrangement it requires.

  The metering shall be installed to the requirements of the Metering Code and the electricity supplier.

### 7.5 Switchboards

• **General**
  All switchboards shall comply with the following requirements:

  Construction shall comply with the requirements of AS 3439.1.

  - Switchboard shall be a type tested assembly.
  - Capable of withstanding the maximum prospective fault level generated at the point of supply by the maximum substation transformer capacity. The substation transformer capacity shall be calculated for the fully developed substation configuration, inclusive of the specified spare capacity.
  - Form of Separation shall be
    - Form 3b: for switchboards supplying a maximum demand of up to 350 kVA, inclusive of 50% spare capacity.
    - Form 4: for switchboards supplying a maximum demand of up to 350 kVA, inclusive of 50% spare capacity.
  - Main switchboards in Type 3 buildings supplying a maximum demand in excess of 350 kVA, shall comply with the Internal Arcing Fault Tests specified in Appendix EE of AS 3439.1.
- Spare space shall be provided within the switchboard to permit the future installation of switchgear required to make use of the 50% spare electrical capacity.
- Spare space shall be provided within the switch-room or cupboard to permit the future installation of one additional switchboard module of length equal to the other modules or 20% of total switchboard length, whichever is the greater.
- Provide discrimination co-ordination for all protection devices.
- Main switchboard and distribution switchboards (DBS) should include pulsing submeters to facilitate energy management of energy cost divestment.

- **Distribution boards**
  Distribution boards shall be designed in compliance with the following:
  - tested busbar assemblies
  - capable of withstanding the maximum prospective fault level generated at the point of supply attachment
  - boards shall be installed in appropriate locations to suit the specified design capacities and the load configurations of the building, taking into account factors such as flexibility and voltage drop
  - spare capacity and space to permit an additional 50% outgoing circuits
  - full size busbars for entire length of board.

7.6 **Submains**

Separate submains shall be installed for each type of building facility in each plant area, and shall comprise:

- full size neutral conductors
- spare capacity to ensure compliance with the requirements specified in Sub Elements 7.5
- submains serving multiple levels in Type 1 buildings shall be provided with fused tee-off boxes at each distribution board
- provision shall be made in the sub-main configurations to enable electrical supply to be drawn from alternative sub-mains to service equipment requiring high levels of reliability of supply.

7.7 **General purpose power**

- **Office areas**
  Basic general purpose power provisions shall be provided as follows:
  - around perimeter walls in approved three (3) compartment skirting duct. Install general purpose power outlets at approximately 5 m centres
  - throughout office floor areas generally at the rate of one double outlet per 10 m² of floor area.
• Other areas
Provide sufficient general purpose outlets to serve all facilities called up within these Guidelines. In addition outlets shall be in all service areas, toilets, plant-rooms and the like to ensure that cleaning and maintenance operations can be carried out safely and efficiently.

• Wiring
General purpose power circuits shall be wired in not less than 2.5 mm² PVC wiring with not greater than two-thirds circuit utilization.

• Residual current device protection (earth leakage protection).
Power circuits supplying general purpose outlets in all toilets, bathrooms, kitchens, change room, laundries and the like, shall be protected by residual current devices, providing Type II personal protection - AS 3000 and Building Code of Australia.

7.8 Lighting

• General
Low brightness tri-phosphor lamp fluorescent lighting shall be used for all office and other working areas. The entire installation shall comply with the requirements of AS 1680. Corridor/circulation space lighting should be at lower levels than work areas.

Luminaries shall be designed for ease of lamp changing. Components and casings shall be physically robust. Luminaries shall be connected to the wiring network via plugs and sockets. Luminaries should have a light out-put ratio of greater than 70%. Work area lighting should be switched locally in banks having not more than 50 m² lit from a single switch. The lighting layout should be arranged so that perimeter lighting near windows can be switched separately.

In conference and meeting rooms, the lights shall be controlled by the room switch and sensor control.

Lighting circuits shall be wired in not less than 2.5 mm² PVC wiring to a maximum two-thirds capacity.

Ballasts and PFC capacitors shall conform to AS 2643, AS 2644 and AS 3168. Ballasts shall be selected from a ‘low loss’ or super low loss’ range i.e. 15% or 10% of the nominal lamp rating. Consider usage of electronic ballast.

The wiring network shall be loaded to a maximum of two-thirds capacity and shall incorporate an un-switched active conductor, carried to each plug base, to facilitate future luminaire switching.

Where the project brief identifies the possibility that screen based equipment will be installed, the lighting installation shall comply with the requirements of AS 1680.2.2.

The lighting installation shall incorporate switching arrangements and automatic switching/dimming control, appropriate to an energy efficient facility. As a
minimum, work area lighting shall be switched locally in banks having not more
than 50 m² lit from a single switch. The lighting layout shall be arranged so that
perimeter lighting near windows can be switched separately. Automatic lighting
controls shall switch manually on and automatically off. Occupancy sensors shall
be considered for intermittently used areas, such as conference rooms and
lecture theatres.

- **Architectural lighting**

Quite often there will be parts of a project where the lighting requirement extends
beyond the purely functional need to provide a specified illuminance.

Feature lighting is usually required in foyers, lift lobbies, conference rooms,
boardrooms, executive suites, bars, restaurants and lounge areas. Architectural
form can be expressed through specialised lighting techniques, or light can be
created to exist as a design element in itself.

New lighting technologies (such as fibre optics) need to be explored to provide
comfortable ergonomic solutions without compromise to policies of energy
conservation, cost effectiveness or maintainability. For these reasons mains
voltage incandescent light sources are no longer appropriate and preference
should be given to the use of compact fluorescent, extra low voltage halogen, or
HID sources.

Dimming systems and/or programmed controls for the integration of natural with
artificial light should be a consideration in all new lighting installations.

Where floodlighting to building facades or architectural features is to be used,
careful planning needs to address the issues of streetscape, traffic flow, security
and energy loadings.

### 7.9 Emergency and exit lighting

Emergency and exit lighting shall comply with the current requirements of the Building
Code of Australia and AS 2293.

Centralised emergency and exit luminate testing facilities shall be provided. This
facility shall comprise test switches at the location of each distribution board in
buildings with a floor area of no more than 5,000 m². In larger buildings a
computerised central test facility shall be installed.

### 7.10 Spatial requirements and cable
management

- **General**

Provision shall be made to provide ongoing access for the installation and
servicing of all systems and equipment. Service pathways shall be continuous
and allow access at every floor level, typically from circulation corridors.
• Separate pathways shall be provided for the installation of:
  – electrical mains cables
  – communications cables
  – fire and emergency systems cables
  – control cables.

• Cable trays shall be installed in ceiling and other spaces to carry initial and future cabling. Trays shall be sized to anticipate the extent of wiring need to carry the specified design power loadings.

• Spatial planning shall incorporate space capacity for future requirements.

7.11 Lightning protection

A lighting protection system shall be provided in accordance with AS 1768 where the Assessment of Risk (R, Table 2.7 of AS 1768) is 13 or above.

7.12 Energy efficiency

The installation shall comply with the requirements of the Sustainable Energy Authority – Building Energy Brief for Commercial and Public Buildings
Element 8

Fire Protection Services

8.1 Scope

Fire Protection Services as applied to buildings are defined as all fire detection and fire suppression facilities, together with all required alarms and controls. These facilities are integral with the smoke control systems contained within the mechanical services installation, the emergency exit lighting provisions of the electrical installation, the emergency warning and evacuation system contained within the Communications installation and the operation of the lifts in fire alarm mode.

Fire protection services include:

- fire main and water supplies
- automatic fire sprinkler systems
- hydrant and hose reel systems
- diesel and/or electric pump systems
- smoke and thermal detection systems
- associated alarms, controls and intercommunication systems
- automatic gaseous fire extinguishing systems
- portable fire extinguishing equipment, together with other particular facilities as may be applicable to Type 3, Special Use Buildings.

8.2 Standards and regulations

Fire Protection services shall comply with the requirements of the Building Code of Australia together with the following standards, including all amendments:

- AS 1136.1 Low Voltage Switchgear and Control Gear Assemblies, General Requirements.
- AS 1221 Fire Hose Reels
  - Part 1 Fire
  - Part 2 Local Fire
  - Part 3 Monitoring network performance
• Part 6 Smoke alarms
  • AS 1668.1 Fire and Smoke Control
  • AS 1841 to 1850 inclusive Portable Fire Extinguishers of Various Type
  • AS 1851, Parts 1 to 10 inclusive Maintenance of Fire Protection Equipment
  • AS 2118.1 Automatic Fire Sprinkler Systems General Requirements
  • AS 2118.6 Combined Sprinkler and Hydrants
  • AS 2118.9 Piping Support and Installation
  • AS 2118.10 Approval and Documentation
  • AS 2419 Fire Hydrant Installations, System Design, Installation and Commissioning
  • AS 2419.2 Fire Hydrant Valves
  • AS 2419.3 Fire Brigade Booster Connections
  • AS 2220 Emergency Warning and Intercommunication Systems in Buildings
  • AS 2220.1 Equipment Design and Manufacture
  • AS 2220.2 System Design, Installation and Commissioning
  • AS 2441 Installation of Fire Hose Reels
  • AS 2444 Portable Fire Extinguishers – Selection and Location
  • AS 3000 Electrical Installations – Building Structures and Premises
  • AS 3439 Low Voltage Switch Gear and Control Gear Assemblies, General Requirements
  • AS 4118 Fire Sprinkler System
    – Part 1.1 Components – Sprinklers and Sprayers
    – Part 1.2 Components – Alarm Valves (wet)
    – Part 1.3 Components – Water Motor Alarms
    – Part 1.4 Components – Valve Monitors
    – Part 1.5 Components – Deluge and Pre-action Valves
    – Part 1.6 Components – Stop Valves (dry)
    – Part 1.8 Components – Pressure Reducing Valves
    – Part 1.9 Components – Accelerators and Exhausters
    – Part 2.1 Piping – General
  • AS 4214 Gaseous Fire Extinguishing Systems: Parts 1 to 7 inclusive
  • AS 4428 Fire Detection, Warning, Control and Intercom Systems Control And Indicating Equipment: Parts 0 to 10 inclusive
  • Building Code Of Australia (including the Victoria BCA Appendix)
  • Victoria Service and Installation Rules
8.3 Fire mains and water supplies

Fire mains and water supplies complete with all facilities required by the Building Code of Australia, local water authorities and associated standards inclusive of all amendments applicable to the date of the submission, shall be provided.

8.3.1 Automatic fire sprinkler systems

Automatic fire sprinkler systems shall be installed in all buildings as required by the Building Code of Australia, inclusive of all addenda applicable at the time of submission, and as required by local authorities to AS 2118.1.

- Sprinkler systems shall generally be of the wet pipe type except as may be specified otherwise in the project brief.
- Sprinkler system piping networks shall be designed, calculated and sized to accommodate the installation of up to 30% additional sprinkler heads in office and work areas. Provide plugged tees in branch piping to facilities such additions.

8.4 Automatic fire detection systems

Where a building, or parts of a building are not required to be protected with an automatic fire sprinkler system, a fire detection and alarm system shall be installed in accordance with AS 1670.

8.5 Fire hydrants and hose reels

Fire hydrants and hose reels complete with all required components shall be provided in compliance with the Building Code of Australia and in accordance with AS 2419, AS 1221 and AS 2441.

8.6 Fire control centre

Where required by the Building Code of Australia a fire control centre shall be provided.

8.7 Diesel and/or electric booster pumps

Where required, booster pumps complete with all required components shall be provided in compliance with the Building Code of Australia and in accordance with Australian Standards.
8.8 Electrical wiring and components

Electrical facilities shall be provided to drive all plant and equipment. Facilities shall include motor control centres complete with switchgear, motor starters, and control components, and power and control wiring.

Provision for one additional module or 20% additional length, whichever is the greater, shall be made.

All necessary protective and other devices shall be provided. Power control wiring shall be run separately and shall be enclosed in conduits, in plant-rooms and other exposed locations. Elsewhere wiring shall be run on cable trays.

Motor starters shall generally be ‘Direct-on-Line’ except where reduced voltage starters are recommended by equipment manufacturers, required by supply authorities, or required by good practice.

Spatial Requirements and Cable Management

- General
  Provision shall be made to provide ongoing access for the installation and servicing of all systems and equipment. Service pathways shall be continuous and allow access at every floor level, typically form circulation corridors.

- Separate pathways shall be provided for the installation of:
  - electrical mains cables
  - communications cables
  - fire and emergency systems cables
  - control cables.

- Spatial planning shall incorporate space capacity for future requirements.

8.9 Fire extinguishers

Portable fire extinguishers shall be provided to the requirements of local authorities and in accordance with AS 2444.

8.10 Automatic gaseous extinguishing systems

Where sprinkler protection is deemed inappropriate to enclosures such as computer, telecommunications and records rooms etc., gaseous extinguishing systems shall be used as an alternative. The gaseous extinguishing system shall be only activated only by a Very Early Smoke Detection Apparatus (VESDA) offering a staged alarm, evacuation and discharge sequence.
Visual and audible alarm/evacuation shall be provided in accordance with the BCA, associated standards, and manufacturers requirements to suit each application/installation. Gas cylinder storage shall be in accordance with the BCA, associated standards and manufacturers requirements.
Element 9

Lift Services

9.1 Scope

Building transportation facilities are defined as all those systems which facilitate the movement of people, furniture, equipment and other suppliers throughout a building and, supplementarily, the movement vehicles in situations where spatial limitations apply. As such they include:

- passenger lifts
- goods lifts
- escalators

Together with other particular facilities as may be specified in the particular project brief.

9.2 Standards and regulations

The transportation and facilities installation shall conform to the requirements of the Victorian WorkCover Authority Australian Standards and other applicable Authority requirements. In particular transportation systems shall comply with current editions including addenda of:

- AS 1735, Parts 1 to 15 inclusive – Lifts, Escalators and Moving Walks, (inclusive of all amendments)
- Full compliance of installations with Part 12 of AS 1735 with regard to operation and access for disabled persons will be required unless specifically nominated otherwise.

Consideration should be given to reducing standby and out of hours energy use by the use of efficient control systems and lift drive technology.

9.3 Design parameters

Minimum requirements

For two (2) and three (3) storey buildings a lift shall be provided for the vertical transportation of equipment, furniture, supplies and disabled persons unless direct compliant access to all floors is possible from ground level as a consequence of, for example, a sloping site.
Passenger lifts system performance requirements

Passenger lifts systems shall be provided according to the following performance parameters.

- Where buildings have to one to three floors above ground:
  - Maximum average between lifts arrivals – 50 seconds
  - Minimum handling capacity in five (5) minutes – 10% of the building population.
- Where buildings have four (4) to seven (7) floors above the ground:
  - Maximum average interval between lifts arrivals – 35 seconds
  - Minimum handling capacity in five (5) minutes – 12.5% of the building population.
- Where buildings have eight (8) or more floors above the ground:
  - Maximum average interval lift arrivals – 30 seconds
  - Minimum handling capacity in five (5) minutes – 15% of the building population

Building population densities for the purpose of calculating the lift performance levels shall be taken as 15 m$^2$ of net useable area per person.

Consideration should be given to reducing capacity standby and out of hours energy use through efficient control systems and lift drive technology.

Goods lifts requirements

For small buildings having only one lift this unit shall be designed for combined passenger/goods services.

For buildings exceeding 4 levels (including ground) having a net useable floor area of less than 20,000 m$^2$ at least two passenger lifts shall be equipped for combined passenger/goods service. Passenger/goods lifts shall have a minimum rated capacity of 1,500 kg.

For buildings having a net useable floor area of between 20,000 and 35,000 m$^2$ a minimum of one dedicated goods lift having a minimum rated capacity of 2,000 kg shall be provided.

For buildings have a net useable floor area in excess of 35,000 m$^2$ a minimum of two (2) dedicated goods lifts having a minimum rated capacity of 2,000 kg each shall be provided.

Where circumstances require additional goods service the relevant requirements will be defined in the particular project brief.

Protective quilts which clip on to lift interiors shall be provided for combined goods/passenger lifts. Dedicated goods lifts shall have appropriately braced stainless steel wall linings or similar robust finish preferably with a 250 mm buffer rail located at an appropriate height on all walls of the car. Buffer rails shall be manufactured from an approved impact resistant and absorbing material.
Supplementary systems

Lift systems which serve car-parks or other particular areas shall be designed to provide a quality of service which is consistent with the specified quality of the main lift systems.

Particular consideration shall be given to the maintenance of adequate service while one unit is out of service.

Main lift system service shall preferably not be extended to supplementary areas such as basement car-parks.

9.4 Lift cars and doors

Passenger lift cars shall have a width greater than depth. Car and handling doors shall have a minimum clear opening width of 1,000 mm.

Where passenger lifts incorporate goods and/or stretcher carrying provisions the above width/depth requirements may be varied.

Door safeties shall include full height light ray detection with ray spacing not exceeding 100 mm. Door nudging audible indicators and displays be included.

9.5 Ride quality

Drive systems shall be selected to provide the ride characteristics which are of the highest quality as to both smoothness and acceleration. Jerks and abrupt stops will not be accepted.

For installations with a service speed greater than 1.8 m/s acceleration shall not exceed 1.3 m/s² and the rate of change of acceleration shall not exceed 1.8 m/s³.

9.6 Disabled persons

All passenger lifts shall comply with relevant requirements of AS 1735 unless otherwise agreed. In particular, heights of landing and car buttons shall be located with consideration to users who are disabled and/or are in wheelchairs.

9.7 Escalators

Where provided, escalators shall be minimum 1,000 mm width and shall operate at 0.6 m/s.

Liberal provision for queuing shall be made at the top and bottom landings and at entry and exit points of the escalator itself. In public areas construction shall take
account of possible vandalism and interference. Emergency stop buttons on the escalator deck shall have a transparent flip cover.

9.8 Emergency/fire service transport/communication

Lift systems shall be provided with all facilities and controls as required by the Building Code of Australia and AS 1735.

All communication devices within lift cars shall be fully flush mounted and not require the use of a handset. Ensure all remote connections to telephone/data lines necessary are made to ensure correct operation of the communication systems.

9.9 Controls

Transportation systems controls shall be microprocessor based and shall incorporate remote monitoring facilities for both performance and maintenance requirements.

Escalators shall be capable of having alarms and operational status monitored in a remote location.

9.10 Supervisory facilities

Multiple lift installations shall have on-site screen based supervisory facilities shall be installed for lift installations in the lift machine room. It shall be possible to remotely connect screen based monitors.

9.11 Installation maintenance information and manuals

The transportation system supplier shall provide maintenance manuals containing sufficient information to allow maintenance to be carried out by qualified personnel other than staff who are employed by the original installer.

This information shall include complete details of circuitry, software and maintenance and trouble shooting procedures for all equipment which forms part of the installation.

9.12 Energy efficiency

The installation shall comply with the requirement of the Sustainable Energy Authority – Building Energy Brief for Commercial and Public Buildings.
Element 10

Energy Management

10.1 General intent

The design of building services should address the following issues:

- appropriateness to the size, location, use and internal environment of the building
- passive energy performance of the building facade
- capacity of the building service systems and their performance in relation to energy consumption
- ability to monitor and report energy consumption of various services and tenancies for energy management and cost divestment purposes
- potential impact of materials, fuels and refrigerants upon atmospheric ozone layer depletion and global warming
- flexibility of spatial planning to allow the integration of developing technologies into business operations
- safety and security and information
- maintainability of systems and equipment.

10.2 Usage

Proposers shall submit evidence of energy performance which is based upon actual records of consumption and hours of operation. This information shall be standardised to reflect compliance with the design requirements set out in these Guidelines and the basic 2,500 hours of annual operation. This is nominally 250 days (which excluded weekends and public holidays) of 10 hours each. Occupation to commence at 8.00 am and terminate at 6.00 pm. Allowance shall be made for morning warm up and cooling down prior to 8.00 am occupancy.

10.3 Building energy performance

Energy performance for the proposed building should normally equal or exceed the targets defined in:

- 4–Star rating as determined by the Building Greenhouse Rating Scheme administered by the Sustainable Energy Authority
• *Energy Guidelines for Building Owners and Managers* published by the Property Council of Australia


• Building envelope passive energy performance would normally incorporate the following design factors:
  - single glazing, where used shall not exceed 25% of the wall area (reference shading coefficient 0.95) except for ground floor show rooms, entry lobbies and the like.
  - double glazing, where used shall not exceed 50% of the wall area (reference shading coefficient 0.4)

• Building energy brief published by the Sustainable Energy Authority.

• Insulation would normally be applied to other building envelope components to attain thermal resistance values as follows:
  - Walls \( R \, 1.3 \)
  - Roofs \( R \, 3.0 \)
  - Floors \( R \, 1.0 \)

• Infiltration levels shall be minimised by careful consideration of construction requirements. Design of entry lobbies and other entry and exit doors shall also reflect this requirement

• Alternative arrangements of building envelope which deviate from the above requirements will be considered provided that the building as a whole achieves equal or superior passive energy performance levels to that which would be attained when adhering to the requirements. In calculating such performance levels allowance shall not be made for internal shading devices. It is permissible, however, to incorporate permanent external shading devices in the assessment. Calculations which demonstrate equivalent performance shall be submitted where such other arrangements are to be adopted.

### 10.4 Lighting

Energy efficient lighting shall be adopted throughout the building.

Upper limits of power consumed in achieving required illumination level shall be as follows:

- general offices: 14 W/m\(^2\)
- car parks: 3W/m\(^2\)

For other areas proposers shall indicate the energy consumption levels attained.

Switching arrangements shall be arranged such that energy consumed during cleaning and other servicing operations is minimised.
10.5 Air handling

Air handling systems performance should as a minimum attain the following parameters:

- **Air Transport Factor** = Space Sensible Heat Removed ÷ Supply & Return Fans Power Input ≥ 5.5

For general ventilation systems low velocity/low pressure systems shall be provided.

Air handling system ducts carrying cooled or heated air shall be fully insulated.

10.6 Water circulation systems

Water circulation systems performance should as a minimum attain the following parameter.

- **Water Transport Factor** = Cooling/Heating Energy Delivered ÷ Circulating Pumps Power Input ≥ 30

All piping in systems circulating chilled water, heating water, refrigerants or steam shall be fully insulated.

10.7 Cooling/heating equipment

No specific parameters are provided in these Guidelines. Proposers shall identify the performance levels that will be attained by the equipment they propose to install.

10.8 Energy budget

Submit details of the annual energy consumption of the proposed building. In addition, provide energy budget levels which shall be expressed as megajoules per square metre per annum (MJ/m²/p.a.) and shall be based upon net lettable area.
Element 11

Security Systems

11.1 Scope

Security facilities include control and monitoring systems complete with any necessary interfaces between the various building services.

11.2 Security

Security facilities shall be provided that are appropriate to the needs of the building user. Where facilities are provided they will be a mix of physical and electronic measures that must be carefully integrated.

Buildings for Government occupation shall incorporate the following basic security facilities:

- a reception area, to which visitors have already access
- minimal means of access beyond the reception area to the internal areas of the building

Capability to provide several layers of security zoning to achieve access control.

Where CCTV or computer based access control/security system are provided they shall be selected to enable extension of security on a multi-level basis to all office and work areas as required.

11.3 System intelligence

Security systems shall be designed on the basis of distributed intelligence with each element being able to stand alone in the event that the control facility becomes inoperative.
11.4 Electrical locking

Egress routes shall be maintained at all times. Where electric locks are installed on doors which form part of any egress route they shall not impede the passage of any person who is exiting the building. In the event of a fire alarm, electric locks shall release. All aspects of the installation of electrical locks shall conform with the requirements of the Building Code of Australia.
Element 12

Acoustics

12. Acoustics

The building and its services shall be designed to accord with the recommendations of Australian Standard (AS) AS 2107 Acoustics – Recommended Design Sound Levels and Reverberation Times for Building Interiors and of Design Aids Nos. DA2 and DA7, Noise Control in and Around Buildings, Parts 1 and 3 of the Department of Housing and Construction in association with the Australian Institute of Refrigeration, Air Conditioning and Heating (Inc.) except that notwithstanding the criteria stated therein the design noise level for general office accommodation shall be NR 35.

Provide verification from an approved acoustic consultant at the tenancy design stage to confirm that the maximum noise levels will not be exceeded. Analysis should include:

- acoustic performance of room surface finishes, building construction materials and thicknesses
- noise transfer between adjacent spaces
- equipment noise levels, attenuation, duct internal acoustic insulation etc
- equipment vibration control with respect to support structures and adjacent spaces, and
- environmental noise control.
Element 13

Information Technology

Provide specific information technology and communications facilities as may be specified in the particular project brief.

Reference should also be made to the Department of State and Regional Development Victorian Government Buildings Data and Telephony Cabling Strategy:


These facilities may include:

- communications links between government agencies
- central network server
- connection to off-site mainframe
- microwave and/or ISDN communications links
- connection to traffic control, police headquarters, etc
Element 14

Communication Systems

14.1 Scope

Communication services for buildings may include the following:

- telephone block cabling installation
- data cabling, where specified
- integrated telephone and data cabling system, where specified
- emergency warning and intercommunication system (EWIS)
- master antenna TV system.

Together with other special facilities as may be specified in the particular project brief.

14.2 Standards

The communication systems installations shall conform to the requirements of the following standards and other documents:

- AS 2220 Emergency warning and intercommunication systems in buildings
  - Part 1 - Equipment Design and Manufacture (inclusive of Amendments 1 & 2)
- AS 3084 Telecommunications Installations - Telecommunications Pathways and Spaces for Commercial Buildings.
- AS 1367 Multiple Outlet Distribution Systems - Sound and Vision
- AS 1417.1: Receiving Antennas for Radio and Television in the Frequency Range 30 Mhz to 1 Ghz, Construction and Installation.
14.3 Communications cabling systems generally

With the rapid increased which is occurring in respect of the use by Government agencies of computer and communications facilities, proposers shall pay particular attention to potential requirements of the users of buildings which are the subject of submissions.

All cabling shall be minimum Category 5 E.

Where potential users described in the facilities brief are a medium to heavy users of data equipment, it shall be mandatory for proposers to include a data block cabling scheme which may be integrated with the telephone block cabling scheme. Cabling schemes shall conform with the requirements of AS 3080.

14.4 Spatial requirements and cable management

General

- Provision shall be made to provide ongoing access for the installation and servicing of all systems and equipment. Service pathways shall be continuous and allow access at every floor level, typically from circulation corridors.
- Separate pathways shall be provided for the installation of:
  - electric mains cables
  - communication cables
  - fire and emergency systems cables
  - control cables.
- Cable trays shall be installed in ceiling and other spaces to carry initial cabling in a future fitout cabling. Trays shall be sized to anticipate the extent of wiring need to carry the specified design requirements.
- Spatial planning shall incorporate space capacity for future requirements.

The following spatial provisions for both vertical and horizontal spaces are regarded as being mandatory:

- spare space in MDF and local communications rooms for fibre optics cables terminations
- space for PABX equipment, data multiplexing equipment, modems and other such equipment
- space shall be provided on each floor level to accommodate communications cabling systems distribution facilities.
14.5 Telephone block cabling

A complete telephone block cabling scheme shall be installed. This facility shall comply with current Austel regulations and AS 3080.

14.6 Emergency warning and intercommunications system (EWIS)

An EWIS complying with the requirements of AS 2220 shall be installed in buildings as defined by the Building Code of Australia.

14.7 Master antenna television system (MATV)

An MATV may be installed in buildings if it is a specific requirements of the users. Where a system is installed it shall be designed and installed in accordance with the requirements of AS 1367 and AS 1417.
Element 15

Asbestos, Synthetic Mineral Fibre Material (SMF) and Polychlorinated Biphenyl (PCB) Management

15.1 Objective

Key objectives of the management and synthetic mineral fibre building materials are:

- identification of asbestos and synthetic mineral fibre containing materials
- management and control of asbestos and synthetic mineral fibre containing materials
- compliance with current legislative requirements.

15.2 Current legislation

The building must comply with the following legislation and should address the requirements of the latest addition following Codes of Practice:

- Occupational Health and Safety (Asbestos) Regulations
- Occupational Health and Safety Act

15.2.1 Identification of asbestos containing materials

Workplaces are to be assessed for the presence of asbestos containing materials, in accordance with the Occupational Health and Safety (Asbestos) Regulations.

The identification and assessment of buildings is to be undertaken by a competent person, experienced in the identification of asbestos within the buildings, assessing associated risks and implementing appropriate management control methods.

Sample analysis for asbestos materials is to be undertaken by Victorian WorkCover Authority approved analysts in accordance with the Occupational Health and Safety (Asbestos) Regulations.
15.2.2 Proposed demolition or refurbishment of buildings

Demolition or refurbishment of a building shall be carried out in a manner that is, as far as practicable, safe and without risk to the health of persons in accordance with the Occupational Health and Safety (Asbestos) Regulations.

15.3 Management and control of asbestos containing materials

Management procedures must be designed to control the risk of in-situ asbestos containing materials. The exposure of persons to asbestos must be controlled through the application of the hierarchy of control measures as specified in the regulations. These control measures in order of priority are as follows:

- removal
- enclosure
- encapsulation
- administration controls (labelling and restricting access).

Depending on the nature of the asbestos containing material one or more the above control methods may be utilised.

15.4 Synthetic mineral fibre material (SMF)

Synthetic mineral fibre (SMF) materials including fibreglass, rockwool and ceramic fibre based products, are used in a number of areas throughout buildings. These materials are generally used as insulation within ceilings and walls and to hot water pipework and associated mechanical equipment.

Caution is required when handling SMF products in order to minimise airborne SMF fibre levels.

Essentially, SMF materials should be handled in such a way as to minimise dust and disturbance of the materials. Where SMF materials are required to be installed or removed, then suitable controls and appropriate personal attention are to be provided. Consultation should be sought with regard to appropriate procedures prior to the handling of such materials.
15.5 Polychlorinated biphenyl (PCB) containing materials

PCB containing materials were generally used in capacitors and transformers within electrical products constructed before 1976. These materials were generally used because of their high stability, fire resistance and insulating properties.

- Caution is required when handling and disposing PCB containing products in order to minimise skin contact and environmental risks associated with PCB containing products.

15.6 General safety issues

Employees in accordance with *Occupational Health and Safety Act* shall provide and maintain so far as practicable for employees:

- an assessment in accordance with the Victorian Occupational Health and Safety (Plant) Regulations
- an assessment in accordance with the Victorian Occupational Health and Safety (Confined Spaces) Regulations
- an assessment in accordance with the Dangerous Goods (Storage and Handling) Regulations
- an assessment in accordance with the Victorian Occupational Health & Safety (Hazardous Substances) Regulations 1997
- plant and systems of work that are safe and without risks to health
- adequate control of risks associated with the use, handling, storage and transport of plant and substances
- safe workplace conditions without risks to health
- adequate facilities for employees welfare, and
- appropriate training, information, instruction and supervision to enable employees to work in a safe manner.
Element 16

Quantity Surveying

16.1 Introduction


The Quantity Surveyor shall provide estimating and cost planning services, together with advice and assistance in value management and Life Cycle Costing.

16.2 Investment evaluation - policy and guidelines

The Quantity Surveyor shall be conversant of, and fully understand, the Investment Evaluation – Policy and Guidelines, as issued by the Department of Treasury and Finance.

Particular reference is made to the following sections:

2.1 A Comprehensive Investment Evaluation
2.2 Analysis Techniques
5.1 Identification of Options
6.1 Identification of Financial Impacts
6.2 Analysis of Financial Impacts
6.3 Sensitivity, Switching and Scenario Analysis
10.1 Evaluation of Risk
11.1 Implementation Management
16.3 Estimating and cost planning

General
The pre-construction cost control activities as recommended by the National Public Works Conference refer to figure 1, are the activities to be carried out. These procedures may vary, in approach, depending upon the quality of information, scope of work and time restraints of the particular project.

Stage A – Cost Budget based on Brief
Initial Budget or Concept Estimates

Stage B – Cost Control based on Outline Proposals
Preliminary Estimates

Stage C – Cost Control based on Sketch Design
Sketch Design Estimates

Stage D – Cost Control during Documentation
Design Development Estimates
Pre-Tender Estimates

Estimate Reconciliations
At the issue of new or updated estimates, a full reconciliation with the immediate previous estimate shall be prepared by the quantity surveyor.

The reconciliation shall include, but not necessarily limited to, changes in scope of works; changes in specification / quantity; changes in costing levels over time.

16.4 Value management
The quantity surveyor shall be an active participant in the value management processes.

Involvement shall include, but not necessarily limited to; attendance at value management sessions; provision of costing advice for various options; analysis of impact on capital cost versus operating cost.
16.5 Life cycle costing

The quantity surveyor shall, if requested to do so, provide advice and assistance to the client and design consultants on Life Cycle Costing exercises in relation to the building structure fabric and services.

Such exercises shall include an analysis of the following components:

- capital cost
- replacement cost
- energy consumption
- design and construction time
- maintenance costs
- staffing costs
- financial costs
Element 17

Building Certification

17.1 Building regulations

All building works and alterations are to comply with:

- Building Act 1993,
- Building Regulations 1994
- Disability Discrimination Act
- Associated Australian Standards

17.2 Approvals

Confirm with the relevant Municipal Council whether or not a Town Planning permit is required for the works.

Confirm with the relevant Municipal Council the relevant property information for the works

All building works and alterations are to be certified and/or be subject to a Building Permit as required by the Building Act 1993.

17.3 Finalisation of building works

Information to be collected by the building certifier at the end of the project includes the following certificates of compliance

- structural
- civil
- hydraulic
- mechanical
- electrical
- fire service
- glazing.
All the above information is to be reviewed and assessed and the necessary approval granted based on their conformity with their related and respective Government regulations as stipulated in the above publications.

An Occupancy Permit or Certificate of Final Inspection, which ever is deemed appropriate by the Relevant Building Surveyor must be issued to confirm that the works are completed in accordance with approved documentation and that the tenancy is suitable for occupation.