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**PROPOSED MINISTRY OF JUSTICE AND COURTS
ADMINISTRATION'S (MJCA) NEW COURTHOUSE
& JUDGES RESIDENCE AT SALELOLOGA, SAVAI**

**Architectural Technical
Specification**

November 2022

Revision Status

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			Name	Position Title	Name	Position Title
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STRUCTURAL, CIVIL AND BUILDING SERVICES SPECIFICATION ATTACHED AS SEPARATE DOCUMENTS.

The drawings and specifications are not to be read as mutually exclusive documents. The specifications, drawings and contract complement each other and form the contract set.

0131B PRELIMINARIES

1 GENERAL

1.1 SCOPE OF WORK

The project encompasses the construction of the New Courthouse & Judges Residence and auxiliary works at the Salelologa site in Savaii, Samoa. The Specification shall be read in conjunction with the Samoa Bidding Document (SBD). The works shall include all activities as noted in the SBD and Specifications and necessary to construct the building in compliance with the Construction Drawings and Specifications. These works includes but not limited to;

- General building construction
- Electrical (Power, Lighting and Backup) & Data reticulation
- Audio / Sound System (Courtrooms) & CCTV Security System
- AC & Ventilation mechanical systems
- Sanitary Plumbing including fixtures
- Joinery (Window, doors, general miscellaneous joinery)
- Joinery (fixed furniture)
- And auxiliary services as listed below.

Auxiliary works to service the new MJCA Courthouse & Judges Residence Compound. The works shall include all activities necessary to construct the auxiliary services in compliance with the Construction Drawings and Specifications. These works includes but not limited to;

- Vehicle entry cross over and Entry gates.
- Pedestrian entry cross over, gates and fencing.
- General vehicle parking areas
- Emergency genset (~145KVA generator), diesel storage tank, bund and Shelter
- Transformer and HV/LV cables to and from the street to the buildings.
- Soakage pits for showers, sinks & miscellaneous drainage.
- Septic tanks & absorption fields for sanitary drainage.
- Perimeter Fencing
- Site Electrical

The tender documents will request each respective tenderer to price the project based on the above breakup to allow each tender to be assessed. Refer to the Volume 1 RFP document for additional information.

General conditions

Contract:

The contract used will be the Government of Samoa - Conditions of Contract and Particular Conditions of Contract and the whole of the clauses of same are to be read in conjunction with this specification, drawings, schedules and bidding documents.

Interpretation

General: The words principal, and contract administrator have the same meaning, respectively, as owner and Supervisor, unless the context requires otherwise.

Cross reference: The clause INTERPRETATION, in the 0171 General requirements work section, also applies.

Contract Preparation Fee - **Not Applicable**

Nature of the contract = Lump Sum

1.2 DISCREPANCIES IN THE DOCUMENTS

Mutually Explanatory Documents

The several documents which constitute or evidence the Contract shall be taken as mutually explanatory and anything contained in one but not in the other shall be equally binding as if contained in all. Any discrepancies between the drawings and specification shall imply the most expensive option is to be considered for evaluation of the allowance in the Contract and the matter referred to the Supervisor for a decision.

Minor Items:

The Contractor shall without adjustment to the Contract Sum, supply and execute minor items not expressly mentioned in the Contract but necessary for the satisfactory completion and performance of the work under the Contract.

1.3 THE SITE

Site restrictions

Entry permits: Make available, to persons entering designated secure areas, valid entry. Make sure these persons comply with conditions of entry.

Designated secure areas: MJCA Site.

Conditions of entry: NA

List: NA

Site limitations: Comply with the following restrictions on the use of the site:

The main works vehicle access will be off the Salelologa Sasae Drive. The contractor must ensure this access through Salelologa Sasae Drive is kept clear and in good condition at all times. The contractor is to allow for traffic management throughout the day to ensure the public is safe throughout the works contract.

Occupied premises

General: For the parts of the site, documented in the Occupied premises schedule:

- Allow occupants to continue in secure possession and occupancy of the premises for the required period.
- Maintain safe access for occupants.
- Arrange work to minimise nuisance to occupants and for their safety.
- Protect occupants against weather, dust, dirt, water or other nuisance, by such means as temporary screens.

Proposals: Submit details of proposed methods.

- Purpose of submission: Information only.

Occupied premises schedule - **Not Applicable.**

Occupants	Occupied premises	Period of occupancy

Protection of persons and property

Temporary works: Provide and maintain required hoardings, barricades, guards, fencing, shoring, temporary roadways, footpaths, signs, lighting, watching and traffic flagging to protect the works from unauthorized access.

Public viewing area: N/A

Access ways, services: Do not obstruct or damage roadways and footpaths, drains and watercourses and other existing services in use on or adjacent to the site. Determine the location of such services.

Property: Do not interfere with or damage property which is to remain on or adjacent to the site, including adjoining property encroaching onto the site, and trees.

Rectification

Access ways, services: Rectify immediately any obstruction or damage to roadways and footpaths, drains and watercourses and other existing services in use on or adjacent to the site. Provide temporary services whilst repairs are carried out.

Property: Rectify immediately any interference or damage to property which is to remain on or adjacent to the site, including adjoining property encroaching onto the site, and trees.

Existing services: Not Applicable

Site Security

Security of the site at all times is to be provided to the satisfaction of the Superintendent. In addition to agreed security measures the Contractor shall:

- not allow and shall not approve the entry of any person onto the Site who is not concerned with the execution of the Work unless prior written instruction has been obtained from the Superintendent on the approval of the Principal;
- restrict the number of vehicles on site to the minimum necessary to execute the work. Non-essential vehicles (including those of the Contractor's employees) are to be kept off the works site;
- not permit to be taken, photographs or sketches of the works, nor shall issue or permit to be issued, any information by way of advertisement or publication about the Works unless prior written approval is obtained from the Principal; and
- not divulge to any unauthorized person information, documents and the like furnished to the Contractor by the Principal or the Superintendent unless prior written instruction has been obtained from the Superintendent on the approval of the Principal.
- Supply, erect & remove a temporary (to Engineers approval) site security fence (1.8m high) around the perimeter of the work site and allow for temporary vehicle and separate pedestrian access points.

Site Safety

All matters and conditions which concern the safety, health and welfare of persons working on the Site covered by this Contract shall be the responsibility of the Contractor, shall be at the Contractor's expense, and shall be to the satisfaction of the Superintendent. The Contractor is to comply with all relevant statutory occupational health and safety rules and regulations, and shall:

- continuously maintain a suitable First Aid Kit in a dedicated First Aid Room, and shall ensure that one of his employees on the Site at all times during working hours is the holder of a current First Aid Certificate;
- ensure that all his employees and his Subcontractor's employees wear suitable protective clothing and safety gear at all times while engaged upon work on the Site;
- make available for inspection, testing and approval by the Superintendent or Principal all electrical power tools that will be used by the Contractor for the execution of the works. The Superintendent, on the approval of Principal, has the right to confiscate any equipment which in his opinion is faulty or defective and if necessary have such equipment repaired at the Contractor's or Subcontractor's expense;
- obtain the prior written approval of the Superintendent for the use of "Ramset" guns and other explosive devices on the site. Such devices shall only be operated by fully qualified and licensed personnel, and in accordance with the rules and regulations governing their use; and
- provide appropriate instructions in safety measures and accident prevention to all employees, subcontractors and the like engaged in the execution of the works.

- Accidents: Promptly notify the superintendent (within 24 hours) of the occurrence of the following:
- Accidents involving death or personal injury;
- Accidents involving loss of time; and
- Incidents with accident potential such as equipment failure.
- Accident reports: Submit reports of accidents.
- Environmental Protection
- Comply with the Government of Samoa Environmental Policy and any other environmental protection provisions in the Contract and with the requirements of any statute, by-law, standard and the like related to environmental protection, including control of the following:
- excavation, silt control and drainage;
- disposal of contaminants;
- disposal of refuse;
- trucking;
- storage of fuels and hazardous compounds;
- suppression of dust; and
- suppression of construction noise.
- Comply with all notices and instructions issued by the Superintendent in relation to such Rules and Regulations.

1.4 CONSTRUCTION PLANT

Access roads:

Owner's existing roads: Use only designated roads.

Location: Use access roads designated for the future cross overs. Allow for a temporary site fence and access gates as required.

Parking:

Provide parking on site for site vehicles.

Use of existing services:

General: Existing services may be used as temporary services for the performance of the contract subject to conditions of use as documented in the Existing services schedule.

Existing services schedule

Service	Conditions of use
Water	Supply and install a temporary sub water meter to record the usage and pay for use based on commercial rates available through Samoa Water Authority. The contractor will pay the cost to supply, install, use and remove the sub meter.
Power	Supply and install a sub power meter to record the usage and pay for use based on commercial rates available through EPC. The contractor will pay the cost to supply, install, use and remove the sub meter.
Telephone and Internet Service Connection	Supply and install temporary phone and data connection to the site office. The contractor will pay the cost to supply, install, use and remove the connection.

Contractors site office

To comply with standard construction industry requirements, the Contractor shall provide his own temporary site accommodation and proper facilities for the safe keeping and laying out of his copies of the Contract documents. Remove site accommodation at 'Practical Completion' of the Works. The Contractor shall provide his own telephone and pay all costs and charges in connection therewith.

Workmen's Amenities:

Provide all statutory and necessary amenities and sanitary facilities for the workmen and other persons lawfully upon the site and remove them at 'Practical Completion' of the Works. Occupation of any part of the works and site for the provision of workmen's amenities shall not be permitted without prior approval by the Superintendent.

Protective clothing

Protective clothing. Make available protective clothing for the use of visitors.

- Safety helmets: To AS/NZS 1801, Type 1.
- Certification: Required.
 - Certification provider: An organization accredited by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ).

Number of helmets: 4

Temporary services

Requirement: Provide temporary phone and internet service within the site office. The cost to install, use and disconnect the service will be borne by the contractor.

Project signboards

General: Provide project-specific signboards and the following:

- Locate where directed.
- Maintain in good condition for duration of the work.
- Obtain permission for removal.
- Remove on completion.

Project signboard description

Location: Located on Salelologa Sasse Drive.

Size: 1200mm H x 2400mm W

Text, graphics: TBA

Other details: Colour image of the proposed works and text noting the contractor, client, client logo, project manager and consultants names including their roles and logos.

Adjoining Buildings Survey:

Contractor is to undertake and dilapidation survey of any adjoining structure, driveway or building which may be affected by the works. This survey shall include photographs, and notes outlining the existing condition prior to the work being under taken. Please provide 3 copies of this document to the client prior to the works beginning.

Statutes and Subordinate Legislation:

The Contractor shall remain responsible for compliance with all relevant Statutory Requirements in accordance with the Contract Conditions.

Inspection and Provision of Insurances

Before commencing work under the contract, the Contractor shall provide evidence to the satisfaction and approval in writing of the Owner of the insurance's having been taken out to comply with the relevant clauses in the Conditions of Contract.

1.5 BUILDING THE WORKS

Survey marks

Definition: The term survey mark means a survey peg, bench mark, reference mark, signal, alignment, level mark or any other mark used or intended to be used for the purpose of setting out, checking or measuring the work.

Care of survey marks:

Preserve and maintain the owner's survey marks in their true positions. Rectification: If the owner's survey marks are disturbed or obliterated, immediately give notice and rectify the disturbance or obliteration.

Safety

Accidents: Promptly notify the Superintendent of the occurrence of the following:

- Accidents involving death or personal injury.
- Accidents involving loss of time.
- Incidents with accident potential such as equipment failure, slides and cave-ins.

Accident reports: Submit reports of accidents.

- Purpose of submission: Information only Contractor's representative

General: Must be accessible, and fluent in English and technical terminology.

Subcontracting

General: Submit a complete list of proposed subcontractors and suppliers.

Workmanship and materials

1. All workmanship and materials to be the best of their respective kinds.
2. The Contractor shall ensure he/she orders material within sufficient time to ensure his/her supplies guarantee delivery of these items at times to accord with the building programme. Any lapse in this respect will not be accepted as a just cause for any extension of time to the contract, unless satisfactory evidence is produced that delays in delivery are beyond the Contractor's and the supplier's control.
3. The Contractor shall ensure he orders material within sufficient time to ensure his supplies Superintendent.
4. All materials supplied to the works shall be suitably stored and protected to the approval of the Superintendent.
5. Materials are to be stored so as not to be accessible to the public.

Smoking on construction sites

The Contractor shall at all times ensure that all workmen and visitors on the construction site comply with the following policy on smoking.

In respect of construction sites, smoking is prohibited on/in the following:

- In site offices, lunchrooms or enclosed toilet facilities.
- Inside existing premises that are designated as "no smoking" areas.

Failure to comply with this requirement may result in the offender being ordered permanently off the site.

1.6 NOMINATED AND SPECIALIST SUBCONTRACTORS

Nominated and Specialist subcontract work

There are no Nominated Sub-Contractor for the works.

The Contractor is to allow for in their Tender the any required specialist sub-contractor works.

The Contractor is responsible for administering, coordinating, supervising and generally attending upon the execution of work under the Contract by the selected Nominated and specialist Subcontractor. The Contractor shall provide for each Subcontractor all normal facilities for the proper performance of the Subcontract Work under the Contract including the following:

- access to the Site
- storage areas
- use of water (Nominated Subcontractors shall provide their own hoses and fittings) –
- use of electric light and power supply (Subcontractors shall provide their own cables and portable lamps)
- use of scaffolding and hoisting facilities as provided for the Contractor's own use while in position and at reasonable times including operations, but not the labour for loading or unloading such hoisting facilities (Subcontractors shall pay the Contractor for the use of such scaffold and hoisting facilities at rates agreed between them)
- sanitary conveniences
- statutory amenities for drinking water, messing and changing
- storage of tools
- first aid and safety measures
- rubbish removal from site Any additional facilities required and any cutting of holes, chases, making good or other builders work required in connection with the work of any Subcontractor, shall be the responsibility of the Subcontractor concerned, unless otherwise specified or shown on the drawings.

Nominated and Specialist subcontract direction

Where in any Nominated Subcontract it is specified that any matter or thing is to be referred, submitted, supplied, handed over or notified by the Nominated Subcontractor to the Superintendent or application is to be made to the Superintendent then the Nominated Subcontractor shall as and when required initiate such action with the Contractor and thereafter the Contractor shall as soon as practicable take the matter or thing or application to the Superintendent together with any amendments pursuant to the Subcontract as the Contractor may consider necessary.

Where in any Nominated Subcontract document it is specified that any action or approval is required of the Superintendent or that any work of the Nominated Subcontractor is to be done to the satisfaction of the Superintendent then notification of such action, approval or work done to the satisfaction of the Superintendent or not approved or done as the case may be, shall be given by the

Superintendent to the Contractor and thereafter the Contractor shall as soon as practicable give the notification to the Subcontractor.

Subcontractor with such additional requirements, directions or instructions pursuant to the Subcontract as the Contractor may consider necessary.

Program of work

Construction program: Show the following:

- Sequence of work.
- Critical paths of activities related to the work.
- Long lead time items inclusive of order and delivery dates.
- Allowance for holidays.
- Activity inter-relationships.
- External dependencies including provision of access, document approvals and work by others.
- Periods within which various stages or parts of the work are to be executed.

Time scale: Working days based on 5 days a week

Updated program: Identify changes since the previous issue, and show the estimated percentage of completion for each item of work.

Program chart: **Display in the contractor's site office an up-to-date bar chart and network diagram based on the construction program.**

Site meetings

General: Hold and attend site meetings throughout the contract and arrange attendance of appropriate subcontractors, the Superintendent, and appropriate consultants.

Frequency: *Fortnightly.*

Minutes: Keep minutes of site meetings. Within 5 working days after each meeting, submit to each party written copies of the minutes.

- Purpose of submission: Review.

Contacts: At the first site meeting, submit names and telephone numbers of responsible persons who may be contacted after hours during the course of the contract.

- Purpose of submission: Information

only: Progress photographs

General: Take colour progress photographs within 5 working days before each site meeting. At each site meeting submit 2 sets of glossy prints, and the digital files. Identify the project, date, time, location and orientation.

Purpose of submission: Information only.

Minimum frequency: *Weekly*

Minimum number: 50

Format: JPEG

1.7 WORKPLACE SAFETY AND HEALTH

Compliance

The Contractor shall comply with the Occupational Safety & Health Act 2002 (OSH Act) and associated regulations and with any amendments that may be made to the Act and regulations from time to time. The Act, regulations, Codes of Practice and other safety information can be accessed from:

The Contractor is deemed to have control of the Site for the purposes of executing the work under the Contract. Accordingly the Contractor is responsible for ensuring that, wherever practicable, its employees and all other persons entering and moving about the Site, for whatever purpose, are not exposed to hazards.

Occupational Safety and Health Information

Prior to the commencement of work on Site, or at any other time the Superintendent directs, the Contractor shall consult with the Owner and the Superintendent for the purposes of ensuring that, as far as practicable, the construction work can be done without risk to the health and safety of either those doing the work, or anyone else who may be at or near the construction site. The Contractor shall ensure that the following information is recorded, reviewed and updated regularly, and kept until the Works are completed:

1. The identification of hazards to which a person at the construction site is likely to be exposed;
2. An assessment of the risk of injury or harm to a person resulting from those hazards; and
3. The risk control measures through which the risk of injury or harm may be eliminated or otherwise controlled. If the Contractor becomes aware that a change in the design of the Works could better eliminate or control a risk of injury or harm to those doing the construction work, or anyone else who may be at or near the Site, the Contractor shall ensure that this information is passed on to the Owner and the Superintendent.

If the Contractor becomes aware that a change in the design of the Works could better eliminate or control a risk of injury or harm to those doing the construction work, or anyone else who may be at or near the Site, the Contractor shall ensure that this information is passed on to the Owner and the Superintendent.

The Contractor shall ensure that any Occupational Safety and Health information it receives from the Owner or the Superintendent is incorporated into its hazard identification, risk assessment and risk control measures.

Safety Management Plan:

Prior to the commencement of the work on Site, the Contractor shall prepare and implement a Safety Management Plan relevant to the works under the Contract. The Safety Management Plan shall be maintained, and where necessary updated, throughout the Contract. The Safety Management Plan shall be appropriate to the risks associated with the work under the Contract and shall contain provision for, but not be limited to, the following elements:

- a) Occupational Safety and Health induction for new employees;
- b) listing of competencies required for specialist work (eg. rigger, scaffolder);
- c) the arrangements for managing occupational safety and health incidents on the Site, including accident/incident reporting and investigation;
- d) the safety rules at the Site and description of the arrangements for ensuring that all persons working at or visiting the Site are informed of the rules;
- e) hazard identification, risk assessment and risk control including routine inspection processes;
- f) plant/equipment inspection processes;
- g) pre-job planning, procedural issues and JSA's (**Job Safety Analyses, also known as Safe Work Method Statements**). Within the Safety Management Plan, particular attention is to be given to identifying hazardous activities including, but not limited to, work in confined spaces, asbestos removal, demolition work, excavation work, working near power lines and live conductors and working at heights;
- h) emergency response and evacuation procedures;
- i) methods of communicating and consulting with employees and transmitting new work procedures to employees;
- j) hazardous substances exposure management;
- k) site security;
- l) purchasing/hiring controls (to avoid unknowingly bringing hazards onto the Site);
- m) quantitative performance measures (application to be determined by contract size and duration);
- n) and any other matters that the Superintendent may direct from time to time.

Each element of the Safety Management Plan shall specifically address:

- a) the person on the Site who shall take responsibility for the successful implementation of each element;
- b) the hierarchical structure by which the responsibility is performed; and
- c) the specific manner by which the element is performed.

The Contractor shall prepare the Safety Management Plan in conjunction with a competent person suitably experienced and qualified in safety matters. The Owner may direct that the Contractor prepare the Safety Management Plan in conjunction with the Consultant. Prior to the commencement of the Works, the Contractor shall certify to the Superintendent that its Safety Management Plan

- has been prepared
- has been provided to each person doing construction work at the Site (where this is practical) or is otherwise available for inspection on the Site; and
- has been implemented on Site.

Occupational Health and Safety Induction Training:

The Contractor shall not permit its employees, the employees of other parties or other persons to commence work on the Site until they have been inducted. Such induction shall include but not necessarily be limited to:

- a) familiarization with the Safety Management Plan;
- b) reporting of accidents and incidents which shall include the type of events to be reported, how an event is reported and to whom the event is reported;
- c) emergency procedures - which shall cover the procedure for a medical emergency and for evacuation of the Site in the event of a life threatening situation arising; d) personal protective equipment (PPE) - the standard requirements for the Site;
- d) lifting and manual handling skills;
- e) sun protection;
- f) avoidance of noise induced hearing loss;
- g) location of and access to First Aid on the Site;
- h) legislative framework - an employee's rights and responsibilities under the Act and Regulations;
- i) procedure for the resolution of safety issues at the workplace in accordance with the Act and regulations of the Government of Samoa (OSHA Laws and regulations).

First Aid, Workplace Amenities and PPE for practical guidance for the provision of first aid, workplace amenities and access to these amenities. The Contractor shall induct its employees, the employees of other parties or other persons working on the Site with regard to JSAs and shall prepare "Training Session Attendance" sheets signed by each attendee verifying that such induction has occurred.

Upon commencement of work on the Site, the Contractor shall further induct each employee, the employees of other parties or other persons working on the Site with regard to all significant hazards associated with their particular activity and area of employment on the Site and where relevant shall include the use of powered plant, tools and equipment.

Safe Work Method Statements:

Where construction work on the Site is high risk construction work, the Contractor shall ensure that a person having day-to-day, on site control of the high-risk work at the site gives the Contractor a written Safe Work Method Statement before the high risk construction work commences.

The Contractor shall ensure that the Safe Work Method Statement is kept up to date. For the purposes of this clause, high risk construction work includes:

- a) work involving a risk of a person falling 2 metres or more; or
- b) work on telecommunications towers; or
- c) the demolition of any existing structure; or
- d) disturbing or removing asbestos; or
- e) the alteration to a structure that requires the structure to be temporarily supported to prevent its collapse; or
- f) work within a confined space;
- g) the excavation to a depth of more than 1.5 metres; or
- h) the construction of tunnels; or
- i) the use of explosives; or
- j) work on or near pressurized gas pipes (including distribution mains); or
- k) work on or near chemical, fuel or refrigerant lines; or
- l) work on or near energized electrical installations and lines (whether overhead or underground); or
- m) work in an area that may have a contaminated or flammable atmosphere; or
- n) work involving tilt-up or precast concrete; or
- o) work on or adjacent to roads or railways that are in use; or
- p) work on a construction site where there is movement of powered mobile plant; or
- q) work in an area where there are artificial extremes of temperature; or
- r) work in, over or adjacent to water or other liquids if there is a risk of drowning; or
- s) work involving diving.

The Contractor shall ensure that a Safe Work Method Statement will cover all high-risk construction work done at the site, and that the high risk construction work is carried out in accordance with the statement. Where work is carried out other than in accordance with the Safe Work Method Statement, the Contractor shall ensure that the work ceases (when it is safe to do so) and does not resume until the statement is complied with.

The Contractor shall ensure that the Safe Work Method Statement shall be kept up to date and describe: - each high risk construction work activity that is or includes a hazard to which a person at the construction site is likely to be exposed; - the risk of injury or harm to a person resulting from any such hazards;

- the safety measures to be implemented to reduce the risk, including the control measures to be applied to the activity or hazards; and

- a description of the equipment used in the work activity; and
- the qualifications and training (if any) required for persons doing the work to do it safely.

1.8 MAINTENANCE MANUAL ON COMPLETION

The Contractor at Practical Completion is to provide three copies of the maintenance manual and operating instructions. The maintenance and operating manual shall have the names, addresses, phone numbers, facsimile numbers and email addresses of the Superintendent, consultants, Contractor, and all Subcontractors, listing trade or product supplied, name of subcontractor & contact number and be to the approval of the Superintendent.

The Contractor shall provide a schedule of any warranties and instruction booklets supplied. The Contractor shall provide a separate appendix listing the final colour schedule including any changes as directed on site by the Superintendent after issue of colour schedule.

Refer to the General Requirements section of this specification for warranty requirements.

Note: Final payment is conditional upon receipt of the maintenance manual and operating instruction in a condition acceptable to the Superintendent and within 30 days of Practical Completion. Non-compliance will result in the Superintendent commissioning the relevant consultants to prepare the material with cost being deducted from Retention.

1.9 COMPLETION OF THE WORKS

Final cleaning

General: Before the date for practical completion, clean throughout, including interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces. Clean debris from the site, roofs, gutters, downpipes and drainage systems. Remove waste and surplus materials.

Samples: Remove non-incorporated samples, prototypes and sample panels.

Reinstatement

General: Before the date for practical completion, clean and repair damage caused by installation or use of temporary work and restore existing facilities used during construction to original condition.

Adjoining property

Evaluation: At practical completion, for properties described in the Adjoining properties to be recorded schedule inspect the properties with the Superintendent and owners and occupants of the properties, recording any damage that has occurred since the pre-commencement inspection.

Certificate of occupancy

The Contractor shall liaise with the Local Authority for issue of the Certificate of Occupancy including but not limited to the following all to comply with Authority requirements.

Pest eradication

General: Employ suitably qualified pest exterminators. At practical completion submit a certificate stating that completed works are free of pest types documented in the Pest eradication treatments schedule.

Pest eradication treatments schedule

Pest type to be treated	Eradication method
Rodent	Lockable rodent bait stations and tracking powders

Removal of plant

General: Within 10 working days after practical completion, remove temporary works and construction plant no longer required. Remove the balance before the end of the defects liability period.

1.10 PAYMENT FOR THE WORKS

Anticipated progress claims schedule

General: At commencement of the works, submit a schedule of anticipated progress claims for the contract period. Submit a revised schedule with each progress claim.

Purpose of submission: Information only.

Progress claims

Break-down: With each progress claim, submit a statement of amounts claimed in respect of each work section or trade heading designated in the specification.

Purpose of submission: Review.

Method of measurement

General: In conformance with the principles of the Australian Standard Method of Measurement of Building Works (ASMM).

Other civil engineering work: To AS 1181.

1.11 MISCELLANEOUS

Contractor agrees to observe and observe:

Notice: Do not issue information concerning the project for publication in the media without prior written approval of the owner. Refer to the owner, whenever there are media concerning the project.

Compliance with the law

Requirements of authorities: The owner, before entering into the contract, has given the notices, paid the fees, and obtained the permits, approvals and other authorizations.

Insurances

Contractor must maintain valid and current Workers Compensation in accordance with the laws and regulations. The Contractor must also maintain Contract Works insurance and Public Liability insurance throughout the contract for the period stated within the General Conditions and Particular conditions of contract.

Prior to the works starting the contractor must provide certificates of currency to the superintendent for confirmation and insure these certificates are updated and issued prior to the expiry date.

Permits and Development Approvals

Requirements of authorities: Contractor must have a valid building permit and development application for the works prior to mobilizing.

0171B GENERAL REQUIREMENTS

1 GENERAL

1.1 PRECEDENCE

General

Worksections and referenced documents:

- The requirements of other worksections of the specification override conflicting requirements of this worksection.
- The requirements of the worksections override conflicting requirements of their referenced documents. The requirements of the referenced documents are minimum requirements.

1.2 CROSS REFERENCES

Common requirements

Requirement: Conform to the following work sections:

- 0181 Adhesives, sealants and fasteners.
- 0183 Metals and prefinishes.
- 0185 Timber products, finishes and treatment.

Cross referencing styles

General: Within the text, titles are cross referenced using the following styles:

- Work section titles are indicated by italicized text.
- Subsection titles are indicated by BOLD text.
- Clause titles are indicated by BOLD text.
- Subclause titles are indicated by Bold text.

1.3 REFERENCED DOCUMENTS

Contractual relationships

General: Responsibilities and duties of the principal, contractor and contract administrator are not altered by requirements in the documents referenced in this specification.

Current editions

General: Use referenced documents which are the editions, with amendments, current 3 months before the closing date for tenders, except where other editions or amendments are required by statutory authorities.

1.4 INTERPRETATION

Documentation: conventions

Imperative mood and streamlined language: The words shall or shall be are implied where a colon is used following a keyword or within a sentence or sentence fragment.

Subject of sentences and phrases: Specification requirements are to be performed by the contractor, unless stated otherwise.

Abbreviations

General: For the purposes of this specification the following abbreviations apply:

- NBCS: National Building Code of Samoa 1991
- AS: Australian Standard.
- BCA: National Construction Code Series Volume One: Building Code of Australia Class 2 to 9 Buildings and Volume Two: Building Code of Australia Class 1 and Class 10 Buildings.
- GRP: Glass Reinforced Plastic.
- IP: Ingress protection.
- NATA: National Association of Testing Authorities.
- NCC: National Construction Code.
- NZS: New Zealand Standard.
- PCA: National Construction Code Series Volume 3: Plumbing Code of Australia.
- PVC: Polyvinyl Chloride.
- PVC-U: Unplasticized Polyvinyl Chloride. Also known as UPVC.
- SDS: Safety data sheets.
- VOC: Volatile Organic Compound.
- WHS: Work Health and Safety.

Definitions

General: For the purposes of this specification, the following definitions apply:

- Access for maintenance: Includes access for maintenance, inspection, measurement, operation, adjustment, repair, replacement and other maintenance related tasks.
- Accessible, readily: Readily accessible, easily accessible, easy access and similar terms mean capable of being reached quickly and without climbing over or removing obstructions, mounting upon a chair, or using a movable ladder, and in any case not more than 2.0 m above the ground, floor or platform.
- Attendance: Attendance, provide attendance and similar expressions mean give assistance for examination and testing.
- Contract administrator: Has the same meaning as architect or superintendent and is the person appointed by the owner or principal under the contract.
- Contractor: Has the same meaning as builder and is the person or organization bound to carry out and complete the work under the contract.
- Default: Specified value, product or installation method which is to be provided unless otherwise documented.
- Design life: The period of time for which it is assumed, in the design, that an asset will be able to perform its intended purpose with only anticipated maintenance but no major repair or replacement being necessary.
- Documented: Documented, as documented and similar terms mean contained in the contract documents.
- Economic life: The period of time from the acquisition of an asset to the time when the asset, while still physically capable of fulfilling its function and with only anticipated maintenance, ceases to be the lowest cost alternative for satisfying that function.
- Electricity distributor: Any person or organization that provides electricity from an electricity distribution system to one or more electrical installations. Includes distributor, supply authority,

- network operator, local network service provider, electricity retailer or electricity entity, as may be appropriate in the relevant jurisdiction.
- **Fire Hazard Properties:** To BCA A2.4.
 - **Geotechnical site investigation:** The process of evaluating the geotechnical characteristics of the site in the context of existing or proposed construction.
 - **Give notice:** Give notice, submit, advise, inform and similar expressions mean give notice (submit, advise, inform) in writing to the contract administrator.
 - **High level interface:** Systems transfer information in a digital format using an open system interface.
 - **Hot-dip galvanized:** Zinc coated to AS/NZS 4680 after fabrication with coating thickness and mass to AS/NZS 4680 Table 1.
 - **Ingress protection:** IP, IP code, IP rating and similar expression have the same meaning as IP Code in AS 60529.
 - **Joints:**
 - . **Construction joint:** A joint with continuous reinforcement provided to suit construction sequence.
 - . **Contraction joint:** An opening control joint with a bond breaking coating separating the joint surfaces to allow independent and controlled contraction of different parts or components, induced by shrinkage, temperature changes or other causes. It may include unbound dowels to assist vertical deflection control.
 - . **Control joint:** An unreinforced joint between or within discrete elements of construction which allows for relative movement of the elements.
 - . **Expansion joint:** A closing control joint with the joint surfaces separated by a compressible filler to allow axial movement due to thermal expansion or contraction with changes in temperature or creep. It may include unbound dowels to assist vertical deflection control.
 - . **Sealant joint:** A joint filled with a flexible synthetic compound which adheres to surfaces within the joint to prevent the passage of dust, moisture and gases.
 - . **Structural control joint:** A control joint (contraction, expansion and isolation) in structural elements when used with applied material and finishes.
 - . **Substrate joint:** A joint in the substrate which includes construction joints and joints between different materials.
 - . **Weakened plane joint:** A contraction joint created by forming a groove, extending at least one quarter the depth of the section, either by using a grooving tool, by sawing, or by inserting a pre-moulded strip.
 - **Local (government) authority:** A body established for the purposes of local government by or under a law applying in a state or territory.
 - **Low level interface:** Systems transfer information via terminals and voltage free contacts.
 - **Manufacturer's recommendations:** Recommendations, instructions, requirements, specifications (and similar expressions) provided in written or other form by the manufacturer and/or supplier relating to the suitability, use, installation, storage and/or handling of a product.
 - **Metallic coated:** Steel coated with zinc or aluminium-zinc alloy as follows:
 - . **Metallic coated steel sheet:** To AS 1397. Metal thicknesses specified are based metal thicknesses.
 - . **Ferrous open sections zinc coated as in-line process:** To AS/NZS 4791.
 - . **Ferrous hollow sections zinc coated by a continuous or specialized process:** To AS/NZS 4792.
 - **Network utility operator:** The entity undertaking the piped distribution of drinking water or natural gas for supply or is the operator of a sewerage system or external stormwater drainage system.
 - **Obtain:** Obtain, seek and similar expressions mean obtain (seek) in writing from the contract administrator.
 - **Pipe:** Includes pipe and tube.
 - **Practical completion or defects free completion:** The requirements for these stages of completion are defined in the relevant building contract for the project.
 - **Principal:** Principal has the same meaning as owner, client and proprietor and is the party to whom the contractor is legally bound to construct the works.
 - **Professional engineer:** As defined by the BCA.

- **Proprietary:** Identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.
- **Prototype:** A full size mock-up of components, systems or elements to demonstrate or test construction methods, junctions and finishes, and to define the level of quality.
- **Provide:** Provide and similar expressions mean supply and install and include development of the design beyond that documented.
- **Record drawings:** Record drawings has the same meaning as as-installed drawings, as-built drawings and work-as-executed drawings.
- **Referenced documents:** Standards and other documents whose requirements are included in this specification by reference.
- **Registered testing authority:**
 - . An organization registered by the National Association of Testing Authorities (NATA) to test in the relevant field; or
 - . An organization outside of Australia registered by an authority recognized by NATA through a mutual recognition agreement; or
 - . An organization recognized as being a Registered Testing Authority under legislation at the time the test was undertaken.
- **Required:** Required by the contract documents, the local council or statutory authorities.
- **Rock Breaking:** Defined as solid rock which requires a 20 tonne excavator to remove the rock using a rock breaking implement.
- **If required:** A conditional specification term for work which may be shown in the documents or is a legislative requirement.
- **Sample:** A physical example that illustrates workmanship, materials or equipment, and establishes standards by which the work will be judged. It includes samples, prototypes and sample panels.
- **Statutory authority:** A public sector entity created by legislation, that is, a specific law of the Commonwealth, State or Territory.
- **Supply:** Supply, furnish and similar expressions mean supply only.
- **Tests – completion:** Tests carried out on completed installations or systems and fully resolved before the date for practical completion, to demonstrate that the installation or system, including components, controls and equipment, operates correctly, safely and efficiently, and meets performance and other requirements. The superintendent may direct that completion tests be carried out after the date for practical completion.
- **Tests – pre-completion:** Tests carried out before completion tests, including:
 - . **Production:** Tests carried out on a purchased item, before delivery to the site.
 - . **Progressive:** Tests carried out during installation to demonstrate performance in conformance with this specification.
 - . **Site:** Tests carried out on site.
 - . **Type:** Tests carried out on an item identical with a production item, before delivery to the site.
- **Tolerance:** The permitted difference between the upper limit and the lower limit of dimension, value or quantity.
- **Verification:** Provision of evidence or proof that a performance requirement has been met or a default exists.

1.5 CONTRACT DOCUMENTS

Services diagrammatic layouts

General: Layouts of service lines, plant and equipment shown on the drawings are diagrammatic only, except where figured dimensions are provided or calculable.

Before commencing work:

- Obtain measurements and other necessary information.
- Coordinate the design and installation in conjunction with all trades.

Levels

General: Spot levels take precedence over contour lines and ground profile lines.

Drawings and manuals for existing services

- It will be the contractors responsibility to locate the existing services, advise the super intendent of the service and appropriately relocate as necessary to avoid impeding on the progress of the works. Contractor is to mark on the final as-built drawings the location of any relocated services.

Warranty: No warranty is given as to the completeness or accuracy of drawings and/or manuals of existing services.

1.6 SUBMISSIONS

Requirement

General: Submit the following, as documented:

- Authority approvals: Notes of meetings with authorities whose requirements apply to the work and evidence that notices, fees and permits have been sought and paid, that authority connections are complete and that statutory approvals by the authorities whose requirements apply to the work have been received.
- Building penetrations: Details of the methods to maintain the required structural, fire and other properties to EXECUTION, BUILDING PENETRATIONS.
- Certification: Certification of conformance to documented requirements, including certification that the plant and equipment submitted meets all requirements of the contract documents and that each installation is operating correctly.
- Execution details: Execution programs, schedules and details of proposed methods and equipment. For building services include the following:
 - . Fixing of services: Typical details of locations, types and methods of fixing services to the building structure.
- Marking and labelling: Samples and schedules of proposed marking and labels to EXECUTION, MARKING AND LABELLING.
- Operation and maintenance manuals: For the whole of the work to EXECUTION, OPERATION AND MAINTENANCE MANUALS.
- Products: Products and materials data, including manufacturer's technical specifications and drawing, evidence of conformance to product certification schemes, performance and rating tables and installation and maintenance recommendations.
- Prototypes: Prototypes of components, systems or elements.
- Records: As-built documents, photographs, system diagrams, schedules and logbooks to EXECUTION, RECORD DRAWINGS.
- Samples: Representative of proposed products and materials and including proposals to incorporate samples into the works, if any to EXECUTION, SAMPLES.
- Shop drawings: To EXECUTION, SHOP DRAWINGS.
- Substitutions: To PRODUCTS, GENERAL, Substitutions.
- Tests:
 - . Inspection and testing plan consistent with the construction program including details of test stages and procedures.
 - . Certificates for type tests.
 - . Fire hazard properties: Evidence of conformance of proposed proprietary products to documented requirements for fire hazard properties.
 - . Test reports for testing performed under the contract to EXECUTION, TESTS.
- Warranties: To EXECUTION, WARRANTIES.

Contractor review: Before submissions, review each submission item and check for coordination with other work of the contract and conformance to contract documents.

Submit to: **Superintendent or Architect.**

Submission times

Default timing: Make submissions at least 5 working days before ordering products or starting installation of the respective portion of the works.

Submission response times: Allow in the construction program for at least the following times:

- Shop drawings Certificate approved by Structural Consultants: 10 working days
- Certification of Samples and prototypes: 10 working days
- Manufacturers' or suppliers' recommendations: 10 working days
- Product data: 5 working days
- Product/design substitution or modification: 10 working days

Proposed products schedules: If major products are not specified as proprietary items, submit a schedule of those proposed for use within 3 weeks of site possession.

Identification

Requirement: Identify the project, contractor, subcontractor or supplier, manufacturer, applicable product, model number and options, as appropriate and include relevant contract document references. Include service connection requirements and product certification.

Non-conformance: Identify proposals that do not conform with project requirements, and characteristics which may be detrimental to successful performance of the completed work.

Errors

Errors: If a submission contains errors, make a new or amended submission as appropriate, indicating changes made since the previous submission.

Electronic submissions

Electronic copies file format: PDF, DWG and MS Office (Word, Excel etc.)

Transmission medium: email

Hard copy submissions

Hard copy quantity: 2 bound copies

Standard contract drawing size: A3

1.7 INSPECTION

Notice

Concealment: If notice of inspection is required for parts of the works that are to be concealed, advise when the inspection can be made before concealment.

Tests: Give notice of the time and place of documented tests.

Minimum notice: As documented in the Notices schedule.

Light levels

Requirements: To AS/NZS 1680.2.4.

Attendance

General: Provide attendance for documented inspections and tests.

2 PRODUCTS

2.1 GENERAL

Manufacturers' or suppliers' recommendations

General: Provide and select, if no selection is given, transport, deliver, store, handle, protect, finish, adjust and prepare for use the manufactured items in conformance with the recommendations of the manufacturer or supplier.

Proprietary items/systems/assemblies: Assemble, install or fix to substrate in conformance with the recommendations of the manufacturer or supplier.

Project modifications: Advise of activities that supplement, or are contrary to the recommendations of the manufacturers or supplier.

Sealed containers

General: If materials or products are supplied by the manufacturer in closed or sealed containers or packages, bring the materials or products to point of use in the original containers or packages.

Prohibited materials

General: Do not provide the following:

- Materials, exceeding the limits of those listed, in the Safe Work Australia Hazardous Substances Information System (HSIS).
- All materials which contain some form of Asbestos.

- Materials that use chlorofluorocarbon (CFC) or hydro chlorofluorocarbon (HCFC) in the manufacturing process.

Substitutions

Identified proprietary items: Identification of a proprietary item does not necessarily imply exclusive preference for the identified item, but indicates the necessary properties of the item.

Alternatives: If alternatives to the documented products, methods or systems are proposed, submit sufficient information to permit evaluation of the proposed alternatives, including the following:

- Evidence that the performance is equal to or greater than that specified.
- Evidence of conformity to a cited standard.
- Samples.
- Essential technical information, in English.
- Reasons for the proposed substitutions.
- Statement of the extent of revisions to the contract documents.
- Statement of the extent of revisions to the construction program.
- Statement of cost implications including costs outside the contract.
- Statement of consequent alterations to other parts of the works.

Availability: If the documented products or systems are unavailable within the time constraints of the construction program, submit evidence.

Criteria: If the substitution is for any reason other than unavailability, submit evidence that the substitution:

- Is of not enhanced value to the principal.
- Is consistent with the contract documents and is as effective as the identified item, detail or method.

2.2 MATERIALS AND COMPONENTS

Consistency

General: For each material or product use the same manufacturer or source and provide consistent type, size, quality and appearance.

Corrosion resistance

General: Conform to the following atmospheric corrosivity category as defined in AS 4312 and the AS/NZS 2312 series.

Exterior atmospheric corrosivity category: C4

Interior atmospheric corrosivity category: C4

Galvanizing

Severe conditions: Galvanize mild steel components (including fasteners) to AS 1214 or AS/NZS 4680 as appropriate, if:

- Exposed to weather.
- Embedded in masonry.
- Exposed to or in air spaces behind the external leaf of masonry walls.
- In contact with chemically treated timber, other than copper chrome arsenate (CCA).

3 EXECUTION

3.1 SAMPLES

General

Incorporation of samples: Only incorporate samples in the works which have been endorsed for inclusion. Do not incorporate other samples.

Retention of samples: Keep endorsed samples in good condition on site, until the date of practical completion.

Unincorporated samples: Remove on completion.

3.2 SHOP DRAWINGS

General

Documentation: Include dimensioned drawings showing details of the fabrication and installation of structural elements, building components, services and equipment, including relationship to building structure and other services, cable type and size, and marking details.

Diagrammatic layouts: Coordinate work shown diagrammatically in the contract documents, and prepare dimensioned set-out drawings.

Record drawings: Amend all documented shop drawings to include changes made during the progress of the work and up to the end of the defects liability period.

Services coordination: Coordinate with other building and service elements. Show adjusted positions on the shop drawings.

Space requirements: Check space and access for maintenance requirements of equipment and services indicated diagrammatically in the contract documents.

Submission medium: PDF and Hardcopy

Drawing size: A3

3.3 OFF-SITE DISPOSAL

Removal of material

General: Dispose of building waste material off site to the requirements of the relevant authorities.

3.4 WALL CHASING

Holes and chases

General: If holes and chases are required in masonry walls, make sure structural integrity of the wall is maintained. Do not chase walls nominated as fire resistance or acoustic rated.

Parallel chases or recesses on opposite faces of a wall. Not closer than 600 mm to each other.

Chasing in blockwork: Only in core-filled hollow blocks or in solid blocks which are not designated as structural.

Concrete blockwork chasing table

Block thickness (mm)	Maximum depth of chase (mm)
190	35
140	25

3.5 FIXING

General

Suitability: If equipment is not suitable for fixing to non-structural building elements, fix directly to structure and trim around penetrations in non-structural elements.

Fasteners

General: Use proprietary fasteners capable of transmitting the loads imposed, and sufficient for the rigidity of the assembly.

3.6 SERVICES CONNECTIONS

Connections

General: Connect to network distributor services or service points. Excavate to locate and expose connection points. Reinstall the surfaces and facilities that have been disturbed.

Network distributors' requirements

General: If the network distributor elects to perform or supply part of the works, make the necessary arrangements. Install equipment supplied, but not installed, by the authorities.

3.7 SERVICES INSTALLATION

General

Fixing: If non-structural building elements are not suitable for fixing services to, fix directly to structure and trim around holes or penetrations in non-structural elements.

Installation: Install equipment and services plumb, fix securely and organise reticulated services neatly. Allow for movement in both structure and services.

Concealment: Unless otherwise documented, conceal all cables, ducts, trays and pipes except where installed in plant spaces, ceiling spaces and riser cupboards. If possible, do not locate on external walls.

Lifting: Provide heavy items of equipment with permanent fixtures for lifting as recommended by the manufacturer.

Suspended ground floors: Keep all parts of services under suspended ground floors at least 150 mm clear of the ground surface. Make sure services do not impede access.

Arrangement: Arrange services so that services running together are parallel with each other and with adjacent building elements.

Dissimilar metals

General: Join dissimilar metals with fittings of electrolytically compatible material.

Temporary capping

Pipe ends: During construction protect open ends of pipe with metal or plastic covers or caps.

Piping

General: Install piping in straight lines at uniform grades without sags. Arrange to prevent air locks. Provide sufficient unions, flanges and isolating valves to allow removal of piping and fittings for maintenance or replacement of plant.

Spacing: Provide at least 25 mm clear between pipes and between pipes and building elements, additional to insulation.

Changes of direction: Provide long radius elbows or bends and sets where practicable, and swept branch connections. Provide elbows or short radius bends where pipes are led up or along walls and then through to fixtures. Do not provide mixed fittings.

Vibration: Arrange and support piping so that it remains free from vibration whilst permitting necessary movements. Minimise the number of joints.

Embedded pipes: Do not embed pipes that operate under pressure in concrete or surfacing material.

Valve groupings: If possible, locate valves in groups.

Pressure testing precautions: Isolate items not rated for the test pressure. Restrain pipes and equipment to prevent movement during pressure testing.

Differential movement

General: If the geotechnical site investigation report predicts differential movements between buildings and the ground in which pipes or conduits are buried, provide control joints in the pipes or conduits, as follows:

- **Arrangement:** Arrange pipes and conduits to minimize the number of control joints.
- **Magnitude:** Accommodate the predicted movements.

3.6 BUILDING PENETRATIONS

Penetrations

Requirement: Maintain the required structural, fire and other properties when penetrating or fixing to the following:

- Structural building elements including external walls, fire walls, fire doors and access panels, other tested and rated assemblies or elements, floor slabs and beams.
- Membrane elements including damp-proof courses, waterproofing membranes and roof coverings. If penetrating membranes, provide a waterproof seal between the membrane and the penetrating component.

Sealing

Fire-resisting building elements: Seal penetrations with a system conforming to AS 4072.1.

Non fire-resisting building elements: Seal penetrations around conduits and sleeves. Seal around cables within sleeves. If the building element is acoustically rated, maintain the rating.

Sleeves

General: If piping or conduit penetrates building elements, provide metal or PVC-U sleeves formed from pipe sections as follows:

- **Movement:** Arrange to permit normal pipe or conduit movement.
- **Diameter (for non fire-resisting building elements):** Sufficient to provide an annular space around the pipe or pipe insulation of at least 12mm.
- **Prime paint ferrous surfaces.**

- Terminations:
 - . If cover plates are fitted: Flush with the finished building surface.
 - . In fire-resisting and acoustic rated building elements: 50 mm beyond finished building surface.
 - . In floors draining to floor wastes: 50 mm above finished floor.
 - . Dishwashers: 5 mm beyond finished building surface.
 - . Termite management: To AS 3660.1.
- Thickness:
 - . Metal: 1 mm or greater.
 - . PVC-U: 3 mm or greater.

Sleeves for cables: For penetrations of cables not enclosed in conduit through ground floor slabs, beams and external walls provide sleeves formed from PVC-U pipe sections.

3.9 SUPPORT AND STRUCTURE

General

Requirement: Provide incidental supports and structures to suit the services.

3.10 PIPE SUPPORTS

Support systems

General: Provide proprietary support systems of metallic-coated steel construction.

Vertical pipes: Provide anchors and guides to maintain long pipes in position, and supports to balance the mass of the pipe and its contents.

Saddles: Do not provide saddle type supports for pipes greater than DN 25.

Dissimilar metals: If pipe and support materials are dissimilar, provide industrial grade electrically non-conductive material securely bonded to the pipe to separate them. Provide fixings of electrolytically compatible material.

Uninsulated pipes: Clamp piping supports directly to pipes.

Insulated pipes:

- Spacers: Provide spacers at least as thick as the insulation between piping supports and pipes. Extend either side of the support by at least 20 mm.
- Spacer material: Rigid insulation material of sufficient strength to support the piping and suitable for the temperature application.

Support spacing

Cold and heated water pipes: To AS/NZS 3500.1 Table 5.6.4. Provide additional brackets, clips or hangers to prevent pipe movement caused by water pressure effects.

Sanitary plumbing: To AS/NZS 3500.2 Table 10.2.1.

Fuel gas: To AS/NZS 5601.1 Table 5.5.

Other pipes: To AS/NZS 3500.1 Table 5.6.4.

Hanger size table

Nominal pipe size (DN)	Minimum hanger diameter for single hangers (mm)
50 maximum	9.5
65 to 90	12.7
100 to 125	15.8
150 to 200	19.0

3.11 ACCESS FOR MAINTENANCE

Clearances

Minimum clearances for access: Conform to the following:

- ≥ 2100 mm clear vertically above horizontal floors, ground and platforms.
- Preferably ≥ 750 mm clear, but in no case less than 600 mm horizontally between equipment or between equipment and building features including walls.

- If tools are required to operate, adjust or remove equipment, provide sufficient space so that the tools can be used in their normal manner and without requiring the user to employ undue or awkward force.
- If equipment components are hinged or removable, allow the space recommended by the manufacturer.
- Within plant items: Conform to the preceding requirements, and in no case less than the clearances recommended in BS 8313.

Facilities for equipment removal and replacement

Requirement: Provide facilities to permit removal from the building and replacement of plant and equipment, including space large enough to accommodate it and any required lifting and/or transportation equipment. Arrange plant so that large and/or heavy items can be moved with the minimum of changes of direction.

Removal of components: Allow sufficient space for removal and replacement of equipment components including air filters, tubes of shell and tube heat exchangers, removable heat exchanger bundles, coils and fan shafts. Provide access panels or doors large enough to permit the safe removal and replacement of components within air handling units.

Facilities for access

Equipment behind hinged doors: Provide doors opening at least 150°.

Equipment behind removable panels: Provide panels with quick release fasteners or captive metal thread screws.

Removable panels: Provide handles to permit easy and safe removal and replacement. Insulated plant and services: If insulation must be removed to access plant and services provide access for maintenance, arranged so it can be repeatedly removed and replaced without damage.

Piping

Requirement: Conform to the following:

- Provide access and clearance at fittings which require maintenance, inspection or servicing, including control valves and joints intended to permit pipe removal.
- Arrange piping so that it does not interfere with the removal or servicing of associated equipment or valves or block access or ventilation openings.
- Preferably run piping, conduits, cable trays and ducts at high level and drop vertically to equipment.

Electrical and controls

Electrical equipment: Provide clearances and access space to AS/NZS 3000.

Switchboards and electrical control equipment: Locate near the main entrance to plant space. Arrange plant so that, to the greatest extent possible, switchboards are visible from the plant being operated.

Control panels: Locate near and visible from the plant controlled.

3.12 MARKING AND LABELLING

General

Requirement: Mark and label services and equipment for identification purposes as follows:

- Locations exposed to weather: Provide durable materials.
- Pipes, conduits and ducts: To AS 1345 throughout its length, including in concealed spaces.
- Cables: Label to indicate the origin and destination of the cable.

Consistency: Label and mark equipment using a consistent scheme across all services elements of the project.

Label samples and schedules

Submission timing: Before marking or labelling.

Schedule: For each item or type of item include the following:

- A description of the item or type of item for identification.
- The proposed text for marking or labelling.
- The proposed location of the marking and labelling.

Electrical accessories

Circuit identification: Label isolating switches and outlets to identify circuit origin.

Operable devices

Requirement: Mark to identify the following:

- Controls.
- Indicators, gauges, meters.
- Isolating switches.

Equipment concealed in ceilings

Location: Provide a label on the ceiling, indicating the location of each concealed item requiring access for routine inspection, maintenance and/or operation. In tiled ceilings, locate the label on the ceiling grid closest to the item access point. In flush ceilings, locate adjacent to closest access panel. Items to be labelled include but are not limited to:

- Fan coil units and terminal equipment (e.g. VAV terminals).
- Fire and smoke dampers.
- Isolating valves not directly connected to items otherwise labelled.
- Motorised dampers.
- Wall mounted equipment in occupied areas: Provide labels on wall mounted items in occupied areas including the following:
 - Services control switches.
 - Temperature and humidity sensors.

Points lists

Automatic control points: Provide plasticized, fade-free points lists for each automatic control panel. Store in a pocket on the door of the panel. Lists to include terminal numbers, point addresses, short and long descriptors.

Presture vessels

General: Mount **manufacturer's** certificates in glazed frames on a wall next to the vessel.

Valves and pumps

General: Label to associate pumps with their starters and valves. Screw fix labels to body or attach label to valve handwheels with a key ring.

Labels and notices

Materials: Select from the following:

- Cast metal.
- For indoor applications only, engraved two-colour laminated plastic.
- Proprietary pre-printed self-adhesive flexible plastic labels with machine printed black lettering.
- Stainless steel or brass minimum 1 mm thick with black filled engraved lettering.

Emergency functions: To AS 1319.

Colours: Generally to AS 1345 as appropriate, otherwise black lettering on white background except as follows:

- Danger, warning labels: White lettering on red background.
- Main switch and caution labels: Red lettering on white

background. **Edges:** If labels exceed 1.5 mm thickness, radius or bevel the edges.

Labeling text and marking: To correspond to terminology and identifying number of the respective item as shown on the record drawings and documents and in operating and maintenance manuals.

Lettering heights:

- Danger, warning and caution notices: Minimum 10 mm for main heading, minimum 5 mm for remainder.
- Equipment labels within cabinets: Minimum 3.5 mm.
- Equipment nameplates: Minimum 40 mm.
- Identifying labels on outside of cabinets: Minimum 5 mm.
- Isolating switches: Minimum 5 mm.
- Switchboards, main assembly designation: Minimum 25 mm.
- Switchboards, outgoing functional units: Minimum 8 mm.
- Switchboards, sub assembly designations: Minimum 15 mm.
- Valves: Minimum 20 mm.
- Self-adhesive flexible plastic labels:

- Labels less than 2000 mm above floor: 3 mm on 6 mm wide tape.
- Labels minimum 2000 mm above floor: 8 mm on 12 mm wide tape.
- Other locations: Minimum 3 mm.

Label locations: Locate labels so that they are easily seen and are either attached to, below or next to the item being marked.

Fixing: Fix labels securely using screws, rivets, proprietary self-adhesive labels or double-sided adhesive tape and as follows:

- If labels are mounted in extruded aluminium sections, use rivets or countersunk screws to fix the extrusions.
 - Use aluminium or metal rivets for aluminium labels.
- Vapour barriers:** Do not penetrate vapour barriers.

3.13 WARRANTIES

General

Requirement: If a warranty is documented, name the principal as warrantee. Register with manufacturers as necessary. Retain copies delivered with components and equipment.

Warranty period: Start warranty periods at acceptance of installation.

Approval of installer: If installation is not by manufacturer, and product warranty is conditional on the manufacturer's approval of the installer, submit the manufacturer's written approval of the installing firm.

3.14 RECORD DRAWINGS

General

Requirement: Show the following:

- Installed locations of building elements, services, plant and equipment.
- Off-the-grid dimensions and depth if applicable.
- Any provisions for the future.

Recording, format and submission

Progress recording: Keep one set of drawings on site at all times, expressly for the purpose of marking changes made during the progress of the works.

Drawing layout: Use the same borders and title block as the contract drawings.

Quantity and format: Conform to SUBMISSIONS.

Endorsement: Sign and date all record drawings.

Accuracy: If errors in, or omissions from, the record drawings are found, amend the drawings and re-issue in the quantity and format documented for SUBMISSIONS.

Date for submission: Not later than 2 weeks after the date for practical completion.

Services record drawings

General: To General and Recording, format and submission and the following:

- Extensions and/or changes to existing: If a drawing shows extensions and/or alterations to existing installations, include sufficient of the existing installation to make the drawing comprehensible without reference to drawings of the original installation.
- Detention: If on-site detention tanks or pondage are provided, include the volume required on the drawing and the permitted flow rate to the connected system.
- Domestic cold water or fire mains: Show the pressure available at the initial connection point and the pressure available at the most disadvantaged location on each major section of the works.
- Stormwater: If storm water pipes are shown, include the pipe size and pipe grade together with the maximum acceptable flow and the actual design flow.

Diagrams: Provide diagrammatic drawings of each system including the following:

- Controls.
- Piping including all valves and valve identification tags.
- Principal items of equipment.
- Single line wiring diagrams.
- Acoustic and thermal insulation.

- Access provisions and space allowances.
- Fixings.
- Fixtures.
- Switchgear and control gear assembly circuit schedules including electrical service characteristics, controls and communications.
- Charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

CAO base drawings: DWG and/or DXF format

3.15 OPERATION AND MAINTENANCE MANUALS

General

Authors and compilers: Personnel experienced in the maintenance and operation of equipment and systems installed, and with editorial ability.

Referenced documents: If referenced documents or technical work sections require that manuals be submitted, include corresponding material in the operation and maintenance manuals.

Subdivision: By installation or system, depending on project size.

Contents

Requirement: Include the following:

- Table of contents: For each volume. Title to match cover.
- Directory: Names, addresses, and telephone and facsimile numbers of principal consultant, subconsultants, contractor, subcontractors and names of responsible parties.
- Record drawings: Complete set of record drawings, full size.
- Drawings and technical data: As necessary for the efficient operation and maintenance of the installation. Include:
 - . Switchgear and control gear assembly circuit schedules including electrical service characteristics, controls and communications.
 - . Charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- Installation description: General description of the installation.
- Systems descriptions and performance: Technical description of the systems installed and mode of operation, presented in a clear and concise format readily understandable by the principal's staff. Identify function, normal operating characteristics, and limiting conditions.
- Systems performance: Technical description of the mode of operation of the systems installed.
- Baseline data: To AS 1851 and AS/NZS 1868.1.
- Documentation to AS 1851 including the schedule of essential functionality and performance requirements.
- Digital photographic records to Underground services.
- Equipment descriptions:
 - . Name, address, email address and telephone and facsimile numbers of the manufacturer and supplier of items of equipment installed, together with catalogue list numbers.
 - . Schedules (system by system) of equipment, stating locations, duties, performance figures and dates of manufacture. Provide a unique code number cross-referenced to the record and diagrammatic drawings and schedules, including spare parts schedule, for each item of equipment installed.
 - . Manufacturers' technical literature for equipment installed, assembled specifically for the project, excluding irrelevant matter. Mark each product data sheet to clearly identify specific products and component parts used in the installation, and data applicable to the installation.
 - . Supplements to product data to illustrate relations of component parts. Include typed text as necessary.
- Certificates:
 - . Certificates from authorities.
 - . Certificates from consultants.
 - . Copies of manufacturers' warranties.
 - . Product certification.

- Test certificates for each service installation and all equipment.
 - Test reports
 - Test, balancing and commissioning reports.
 - Control system testing and commissioning results.
 - 7 day record of all trends at commissioning.
 - Operation procedures:
 - **Manufacturers' technical literature** as appropriate.
 - Safe starting up, running in, operating and shutting down procedures for systems installed. Include logical step-by-step sequence of instructions for each procedure.
 - Control sequences and flow diagrams for systems installed.
 - Legend for colour-coded services.
 - Schedules of fixed and variable equipment settings established during commissioning and maintenance.
 - Procedures for seasonal changeovers.
 - If the installation includes cooling towers, a water efficiency management plan.
 - Maintenance procedures:
 - Detailed recommendations for periodic maintenance and procedures, including schedule of maintenance work including frequency and **manufacturers' recommended tests**.
 - **Manufacturers' technical literature** as appropriate. Register with manufacturer as necessary. Retain copies delivered with equipment.
 - Safe trouble-shooting, disassembly, repair and reassembly, cleaning, alignment and adjustment, balancing and checking procedures. Provide logical step-by-step sequence of instructions for each procedure.
 - Schedule of spares recommended to be held on site, being those items subject to wear or deterioration and which may involve the principal in extended deliveries when replacements are required. Include complete nomenclature and model numbers, and local sources of supply.
 - Schedule of normal consumable items, local sources of supply and expected replacement intervals up to a running time of 40 000 hours. Include lubrication schedules for equipment.
 - Schedules for recording recommissioning data so that changes in the system over time can be identified.
 - Instructions for use of tools and testing equipment.
 - Emergency procedures, including telephone numbers for emergency services, and procedures for fault finding.
 - Safety data sheets (SDS).
 - Instructions and schedules conforming to AS 1851, AS/NZS 3686.2, AS/NZS 3686.3 and AS/NZS 3686.4.
 - Maintenance records:
 - Prototype service records conforming to AS 1851 prepared to include project specific details.
 - Prototype periodic maintenance records and report to AS/NZS 3686.2, AS/NZS 3686.3 and AS/NZS 3686.4 as appropriate, prepared to include project specific details.
 - For hard copies: In binders which match the manuals, loose leaf log book pages designed for recording completion activities including operational and maintenance procedures, materials used, test results, comments for future maintenance actions and notes covering the condition of the installation. Include completed log book pages recording the operational and maintenance activities performed up to the time of practical completion.
 - Number of pages: The greater of 100 pages or enough pages for the maintenance period and a further 12 months.
- Format – electronic copies
- Scope: Provide the same material as documented for hardcopy in electronic format.
- Quantity and format: Conform to Submissions – electronic submissions.
- Printing: Except for drawings required in the RECORD DRAWINGS clause provide material that can be legibly printed on A4 size paper.

Format – hard copy

General: A4 size loose leaf, in commercial quality, 4 ring binders with hard covers, each indexed, divided and titled. Include the following features:

- Cover: Identify each binder with typed or printed title **OPERATION AND MAINTENANCE MANUAL**, to spine. Identify title of project, volume number, volume subject matter, and date of issue.
- Dividers: Durable divider for each separate element, with typed description of system and major equipment components. Clearly print short titles under laminated plastic tabs.
- Drawings: Fold drawings to A4 size with title visible, insert in plastic sleeves (one per drawing) and accommodate them in the binders.
- Pagination: Number pages.
- Ring size: 50 mm maximum, with compressor bars.
- Text: **Manufacturers'** printed data, including associated diagrams, or typewritten, single-sided on bond paper, in clear concise English.

Number of copies: 3.

Date for submission

Draft submission: The earlier of the following:

- 2 weeks before the date for practical completion.
- Commencement of training on services equipment.

Final submission: Within 2 weeks after practical completion.

3.16 PERIODIC MAINTENANCE OF SERVICES

Maintenance records:

General: Record in binders provided with the Operation and maintenance manuals.

Referenced documents: If referenced documents or technical work sections require that log books or records be submitted, include this material in the maintenance records.

Certificates: Include test and approval certificates.

Service visits: Record comments on the functioning of the systems, work carried out, items requiring corrective action, adjustments made and name of service operator. On completion of the visit, obtain the signature of the principal's designated representative on the record of the work undertaken.

Site control

General: Report to the principal's designated representative on arriving at and before leaving the site.

3.17 POST-CONSTRUCTION MANDATORY INSPECTIONS AND MAINTENANCE

General

Requirement: For the duration of the defects liability period, provide inspections and maintenance of safety measures required by the following:

- AS 1851.
 - Other statutory requirements applicable to the work.
- Records: Provide mandatory records.

Certification: Certify that mandatory inspections and maintenance have been carried out and that the respective items conform to statutory requirements.

Annual inspection: Perform an annual inspection and maintenance immediately before the end of the defects liability period.

4 SELECTIONS

Warranty schedule

Warranty	Form	Period
Electrical Services	Supplier standard warranty for material, equipment and installation	12 months from the date of Practical completion

Warranty	Form	Period
Hydraulics Services	Supplier standard warrantee for material, equipment and installation	12 months from the date of Practical completion
Hydrant Services	Supplier standard warrantee for material, equipment and installation	12 months from the date of Practical completion
Mechanical services	Supplier standard warrantee for material, equipment and installation	12 months from the date of Practical completion
Roof Safety Access	Installers standard warrantee for material, equipment and installation	Installer maximum duration
Roofing	Manufacturers warrantee for material and installation	10 years
Cladding	Manufacturers warrantee for material and installation	5 years
Doors and Door hardware	Manufacturers warrantee for material and installation	5 years
External Screens (Including frames and Crime safe screen and frames)	Manufacturers warrantee for material and installation	Manufacturers maximum Duration
Painting	Manufacturers warrantee for material and installation	Manufacturers maximum Duration

4.1 MAINTENANCE

Maintenance requirements schedule

Provision	Maintenance period (months)	Requirement
Mechanical Services	12 months	Every 3 months in accordance with the requirements of the services specification
Electrical Services	12 months	In accordance with the requirements of the services specification
Hydraulic Services	12 months	In accordance with the requirements of the services specification

Not Used

Not Used

[REDACTED]

[REDACTED]		
[REDACTED]		
[REDACTED]		
Class	Requirement	Ownership
Recovered items for re-use in the works	Recover without damage items identified in the Recovered items for re-use in the works schedule	Principal/proprietor
Recovered items for delivery to the principal	Recover without damage items identified in the Recovered items for delivery to the principal schedule	Principal/proprietor
Demolished material for recycling in the works	Stockpile material identified in the Demolished material for recycling in the works schedule	Contractor
Demolished material for recycling off site	Demolish and deliver for recycling material identified in the Demolished material for recycling off-site schedule	Contractor
Dismantle for relocation as part of the works	Dismantle without damage and store items identified in the Dismantle for relocation schedule	Principal/proprietor
Demolished for removal	Remove from the site demolished materials identified in the Demolish for removal schedule. Do not burn or bury on site Transit: Prevent spillage of demolished materials in transit	Contractor

[illegible][illegible]

- 10 [REDACTED]
- 11 [REDACTED]
- 12 [REDACTED]

sequence of demolition. Contractor is to provide a Safety management plan and safe work statement to be followed within the Preliminary Section of the specification.

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[REDACTED]

[REDACTED]

0221 SITE PREPARATION

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide site preparation, as documented.

Incidental works

Generally: Undertake the following:

- Reinstatement: Reinstatement undeveloped ground surfaces to the condition existing at the commencement of the contract.
- Minor trimming: As required to complete the works, as documented.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.3 INTERPRETATION

Definitions

General: For the purposes of this work section the following definitions apply:

- Authorities: Any authority or agency covering statutory requirements relating to the project, including clearances for work in that particular area.
- Clearances: A formal certificate, approval or condition issued by an authority to allow work to be carried out in a particular area.
- Network utility operator: The entity undertaking the piped distribution of drinking water or natural gas for supply or is the operator of a sewerage system or external stormwater drainage system.

1.4 SUBMISSIONS

Execution details

Requirement: Submit details of methods and equipment proposed for the following:

- Clearing and grubbing.
- Tree removal and transplanting.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Enclosures around trees to be retained.
- Trees to be removed.

2 EXECUTION

2.1 COMMUNITY LIAISON

Notification

General: Notify residents about construction activities which will affect access to, or disrupt the use of, their properties.

Notice: Minimum 5 working days, unless the work is of an urgent nature with safety implications.

Notification content:

- The nature of the work.
- The reason for it being undertaken.
- The expected duration.
- Changes to traffic arrangements and property access.

- The 24-hour contact number of the representative responsible.

2.2 EXISTING SERVICES

General

Requirement: NA

Utility services: Contact MNRE and SFESA to identify location of underground utility services pipes and cables.

Excavation: Do not machine excavate within 1 m of existing underground services.

Existing service lines: If required, divert services detected during excavation to new routes, clear of the building, and reconnect to the network utility operator's requirements.

2.3 SITE CLEARING

Extent

Contractor's site areas: If not included within the areas documented above, clear generally only to the extent necessary for the performance of the works.

Clearing and grubbing

Clearing: Remove everything on or above the site surface, including rubbish, scrap, grass, vegetable matter and organic debris, scrub, trees, timber, stumps, boulders and rubble.

Grubbing: Grub out stumps and roots over 75 mm diameter to a minimum depth of 500 mm below subgrade under buildings, embankments or paving, or 300 mm below finished surface in unpaved areas. Backfill holes remaining after grubbing with sand material to prevent ponding of water. Compact the material to the relative density of the existing adjacent ground material.

Redundant/decommissioned works: Remove works, including slabs, foundations, pavings, drains and access chambers covers found on the surface.

Rock Breaking

Not Applicable.

Rock breaking is noted as the removal of solid rock through the use of a 20 tonne excavator with a rock breaking implement.

Batters

Temporary protection: Where change in level between crest and toe is more than 1.5 m, protect from erosion with geotabric, a hessian and tie or heavy duty black polythene sheet waterproof cover. Seal joints and securely fix down at crest and toe.

Surplus material

Topsoil and excavated material: Continually remove unwanted stripped soil and other material from the site as the work proceeds, including any material dropped on footpaths or roadways.

2.4 STORMWATER AND SEDIMENT CONTROL

General

Erosion and sediment control measures are put in place in accordance with MNRE policies and regulation

Waterways and drains

Waterways: Temporarily divert, as necessary, ditches, field drains and other waterways affected by excavation and reinstate on completion.

Stormwater drains: Divert drains detected during excavation to new routes, clear of the building, and reconnect to the network utility operator's requirements.

Environmental Management Plan will be issued during tender for the contractor to implement during construction.

2.5 EXISTING WORKS TO BE RETAINED

Marking

Requirement: Mark out works with 1 m high 50 x 50 mm timber stakes with yellow plastic tapes attached to prevent accidental damage.

2.6 COMPLETION

Temporary works

Remove at completion:

Clean up

Progressive cleaning. Keep the work included in the contract clean and tidy as it proceeds and regularly remove from the site waste and surplus material arising from execution of the work, including any work performed during the defects liability period or the plant establishment period.

Removal of plant: Within 10 working days of the date of practical completion, remove temporary works, construction plant, buildings, workshops and equipment which does not form part of the works, except what is required for work during the defects liability period or the plant establishment period. Remove these on completion.

Environmental Management Plan will be issued during tender for the contractor to implement during construction.

Vermis management

Requirement: Employ an approved firm of pest exterminators and provide a certificate from the firm stating that the completed works is free of vermin.

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0181 ADHESIVES, SEALANTS AND FASTENERS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide adhesives, sealants and fasteners, as documented.

Performance

Requirements: Conform to the following:

- Fitness for purpose: Capable of transmitting imposed loads, sufficient to maintain the rigidity of the assembly, or integrity of the joint.
- Finished surface: That will not cause discolouration.
- Compatibility: Compatible with the products to which they are applied.
- Sealant replacement: Capable of safe removal without compromising the application of the replacement sealant for future refurbishment.
- Movement: If an adhered or sealed joint is subject to movement, select a system certified to accommodate the projected movement under the conditions of service.
- Fasteners: Accredited for the particular use, capable of transmitting imposed loads and maintaining the rigidity of the assembly.

1.2 PRECEDENCE

General

Order of precedence:

- The requirements of other worksections of the specification override conflicting requirements of this worksection.
- The requirements of the worksections override conflicting requirements of their referenced documents. The requirements of the referenced documents are minimum requirements.

1.3 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.4 SUBMISSIONS

Samples

Visible joint sealants: Submit colour samples.

Products and materials

Sealants: Submit technical data sheets.

Tests

Compatibility testing: Submit adhesion and compability testing data demonstrating that adhesive, sealant or fastener is compatible with materials to be fixed and is suitable for the project conditions.

Warranties

Manufacturer's warranty: Submit the manufacturer's published product warranties.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of prepared joints and penetrations for each sealant.

2 PRODUCTS

2.1 ADHESIVES

Standards

Mastic adhesive: To AS 2329.

Polymer emulsion adhesive for timber: To AS 2754.2, not inferior to Type 3.

2.2 SEALANTS

Standards

General: To ISO 11600.

Lightweight building element joints

Joints subject to rapid changes of movement: Provide sealants that accommodate the movement of the contact materials.

2.3 FASTENERS

General

Masonry anchors: Proprietary expansion or bonded type anchors conforming to SELECTIONS, ANCHORS.

Plain washers: To AS 1237.1.

- Provide washers to the heads and nuts of bolts, and the nuts of coach bolts.

Plugs: Proprietary purpose-made plastic.

Powder-actuated fasteners: To AS/NZS 1873.4.

Stainless steel fasteners: To ASTM A240/A240M.

Steel nails: To AS 2334.

- Length: At least 2.5 times the thickness of the member being secured, and at least 4 times the thickness if the member is plywood or building board less than 10 mm thick.

Unified hexagon bolts, screws and nuts: To AS/NZS 2465.

Fasteners in CCA treated timber: Epoxy coated or stainless steel.

Bolts

Coach bolts: To AS/NZS 1390.

Hexagon bolts Grades A and B: To AS 1110.1.

Hexagon bolts Grade C: To AS 1111.1.

Corrosion resistance

Atmospheric corrosivity category: To the 0171 General requirements worksection.

Steel products: Conform to the Corrosion resistance table or provide proprietary products with metallic and/or organic coatings of equivalent corrosion resistance.

Corrosion resistance table

Atmospheric corrosivity category to AS 4312	Threaded fasteners and anchors		Powder actuated fasteners
	Material	Minimum local metallic coating thickness (µm)	Material
C1 and C2	Electroplated zinc or Hot-dip galvanized	30	Stainless steel 316
C3	Hot-dip galvanized	50	Stainless steel 316
C4 and T	Stainless steel 316	-	Stainless steel 316

Finishes

Electroplating:

- Metric thread: To AS 1887.

- Imperial thread: To AS 4387.

Galvanizing:

- Threaded fasteners: To AS 1214.

- Other fasteners: To AS/NZS 4680.

Mild steel fasteners: Galvanize if:

- Embedded in masonry.
- In external timbers.
- In contact with chemically treated timber other than CCA treated timber.

Epoxy coated: CCA treated timber.

Nuts

Hexagon chamfered thin nuts Grades A and B: To AS 1112.4.

Hexagon nuts Grade C: To AS 1112.3.

Hexagon nuts Style 1 Grades A and B: To AS 1112.1.

Hexagon nuts Style 2 Grades A and B: To AS 1112.2.

Screws

Coach screws: To AS/NZS 1393.

Hexagon screws Grades A and B: To AS 1110.2.

Hexagon screws Grade C: To AS 1111.2.

Hexagon socket screws: To AS 1420 and AS/NZS 1421.

Machine screws: To AS/NZS 1427.

Self-drilling screws: To AS 3566.1.

Self-tapping screws:

- Crossed recessed countersunk (flat – common head style): To AS/NZS 4407.
- Crossed recessed pan: To AS/NZS 4406.
- Crossed recessed raised countersunk (oval): To AS/NZS 4408.
- Hexagon: To AS/NZS 4402.
- Hexagon flange: To AS/NZS 4410.
- Hexagon washer: To AS/NZS 4409.
- Slotted countersunk (flat – common head style): To AS/NZS 4404.
- Slotted pan: To AS/NZS 4403.
- Slotted raised countersunk (oval – common head style): To AS/NZS 4405.

Blind rivets

Description: Expanding end type with snap mandrel.

Type: Closed end for external application, open end for internal application.

End material:

- Aluminium base alloy for metallic coated or prepainted steel.
- Stainless steel for stainless steel sheet.
- Copper for copper sheet.

Size:

- For sheet metal to sheet metal: 3mm.
- For sheet metal to supports, brackets and rolled steel angles: 4.8mm.

3 EXECUTION

3.1 ADHESIVES

General

Requirement: Install to the manufacturer's recommendations.

Preparation

Substrates: Conform to the following:

- Remove any deposit or finish which may impair adhesion.
- If framed or discontinuous, provide support members in full lengths without splicing.
- If solid or continuous, remove excessive projections.

- If previously painted, remove cracked or flaking paint and lightly sand the surface.

3.2 JOINT SEALING

General

Requirement: Install to the **manufacturer's** recommendations.

Joint preparation

Cleaning: Cut flush joint surface protrusions and rectify if required. Mechanically clean joint surfaces free of any deposit or finish which may impair adhesion of the sealant. Immediately before sealant application, remove loose particles from the joint, using oil-free compressed air.

Bond breaking: Install bond breaking backing material.

Taping: Protect the surface on each side of the joint using 50 mm wide masking tape or equivalent means. On completion of sealant application, remove the tape and remove any stains or marks from adjacent surfaces.

Primer: Apply the recommended primer to the surfaces in contact with sealant materials.

Sealant joint proportions

General weatherproofing joints (width:depth):

- 1:1 for joint widths less than 12mm.
- 2:1 for joint widths greater than 12mm.

Sealant application

General: Apply the sealant to dry joint surfaces using a pneumatic applicator gun. Make sure the sealant completely fills the joint to the required depth, provides good contact with the full depth of the sides of the joint and traps no air in the joint. Do not apply the sealant outside the recommended working time for the material or the primer.

Weather conditions

Two pack polyurethanes: Do not apply the sealant if ambient conditions are outside the following:

- Temperature: Less than 5°C or greater than 40°C.
- Humidity: To the **manufacturer's** recommendations.

Joint finish

General: Force the sealant into the joint and finish with a smooth, slightly concave surface using a tool designed for the purpose.

Excess sealant: Remove from adjoining surfaces using cleaning material nominated by the sealant manufacturer.

Protection

General: Protect the joint from inclement weather during the setting or curing period of the material.

Rectification

General: Cut out and remove damaged portion of joint sealant and reinstall so repaired area is indistinguishable from undamaged portion.

3.3 TESTING

Installed sealant tests

Sampling: For each sealant test, take 3 samples of installed and cured sealant, each at least 50 mm long, from completed joints.

Reinstatement: Repair-as-new the joints from which the samples were taken.

3.4 FASTENERS

General

Requirement: Install to the **manufacturer's** recommendations.

Fastening to wood and steel

Timber substrates: To AS 1720.1 Section 4.

Self drilling screws: To AS 3566.1 for timber and steel substrates.

Masonry anchors

Installation: To the **manufacturer's** recommendations.

4 SELECTIONS

4.1 SEALING, POINTING AND BEDDING

Application schedule

Application	Product	Relevant worksections
Metal flashings and rainwater goods	Sika Blackseal BT or similarly approved	0421 Roofing – combined, 0423 Roofing – profiled sheet metal, 0424 Roofing – seamed sheet metal, 0425 Roofing – shingles and shakes, 0426 Roofing – slate, 0427 Roofing – tiles
Louvers and external doors and block walls	Sika Acrylic or similarly approved	0432 Curtain walls, 0451 Windows and glazed doors, 0453 Doors and access panels, 0463 Glass blockwork

0183B METALS AND PREFINISHES

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirements: Provide metal and prefinishes as documented.

Performance

Requirement: Provide metals in sections of strength and stiffness suited to their required function, finish and method of fabrication.

1.2 PRECEDENCE

General

Order of precedence:

- The requirements of other work sections of the specification override conflicting requirements of this work section.
- The requirements of this work section override conflicting requirements of its referenced documents.
- The requirements of the referenced documents are minimum requirements.

1.3 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.4 SUBMISSIONS

Samples

General: Submit samples of the following:

- Stainless steel: One sample of every documented surface finish.
- Anodising: One sample of every colour and finishing option.

2 PRODUCTS

2.1 METALS

Coated steel

Electrogalvanized (zinc) coating on ferrous hollow and open sections: To AS 4750.

Metallic-coated: Steel coated with zinc or aluminium-zinc alloy as follows:

- Ferrous open sections by an in-line process: To AS/NZS 4791.
 - Ferrous hollow sections by a continuous or specialised process: To AS/NZS 4792.
 - Metallic-coated steel sheet: To AS 1397. Metal thicknesses specified are base metal thicknesses.
- Steel wire: To AS/NZS 4534.

3 EXECUTION

3.1 GENERAL

Metal separation

Incompatible sheet metals: Provide separation by one of the following:

- Apply an anti-corrosion low moisture transmission coating such as alkyl zinc phosphate primer or aluminium pigmented bituminous paint to contact surfaces.
- Insert a concealed separation layer such as polyethylene film, adhesive tape, or bituminous felt.

Incompatible fixings: Do not use.

Incompatible service pipes: Install lagging or grommets. Do not use absorbent, fibrous or paper products.

Brazing

General: Make sure brazed joints have sufficient lap to provide a mechanically sound joint.

Butt joints: Do not use butt jointing for joints subject to load. If butt joints are used, do not rely on the filler metal fillet only.

Filler metal: To AS/NZS 1167.1.

Finishing

Visible joints: Finish visible joints made by welding, brazing or soldering using methods appropriate to the class of work (including grinding or buffing) before further treatment such as painting, galvanizing or electroplating. Make sure self-finished metals are without surface colour variations after jointing.

Preparation

General: Before applying decorative or protective prefinishes to metal components, complete welding, cutting, drilling and other fabrication, and prepare the surface using a suitable method.

Standard: To AS 1627 series.

Priming steel surfaces: If site painting is documented to otherwise uncoated mild steel or similar surfaces, prime as follows:

- After fabrication and before delivery to the works.
- After installation, repair damaged priming and complete the coverage to unprimed surfaces.

Welding

Aluminium: To AS 1665.

Stainless steel: To AS/NZS 1554.8.

Steel: To AS/NZS 1554.1.

3.2 COMPLETION

Damage

Damaged prefinishes: Remove and replace items, including damage caused by unauthorised site cutting or drilling.

Repair

Metallic-coated sheet: If repair is required to metallic-coated sheet or electro galvanizing on mildgalvanized steel products, clean the affected area and apply a two-pack organic primer to AS/NZS 3750.9.

0193 BUILDING ACCESS SAFETY SYSTEMS

1 GENERAL

1.1 RESPONSIBILITIES

General

Contractor shall allow to install a load rated ladder clip to the lower entry roof and at the low end of the main roof complete with roof safety anchors to allow safe access to the equipment listed below:

- Roof Gutter
- External Screens

The system must be maintained throughout the 12 month defects period.

Roof Anchor Safety:

All anchor points to be used should be independently tested by accredited tested for common roof structures and profiles and meet or exceed the requirements of Australian Standards AS/NZS 1891.4:2000, AS/NZS 5632:2013, and AN/NZS 4488:1997.

- Minimum of 22KN rated two person energy absorption anchor.

Placement of the anchors should be in accordance with AS/NZS 1891.4:2000 to ensure the user is safeguarded against excess fall and pendulum movement due to the fall.

The contractor shall provide a A3 Plan indicating the all safety points and swings to ensure the system is compliant prior to ordering.

Construction Safety Access:

Installation, maintenance and removal of temporary safety railing, scaffolding, access harness, lanyards, static lines throughout the construction is the responsibility of the contractor

0315 CONCRETE FINISHES

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide finishes to formed and unformed concrete surfaces, as documented.

Performance

Requirement: Compatible with documented finishes.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.3 STANDARDS

General

Formed surfaces: To AS 3610.1.

1.4 INTERPRETATION

Definitions

General: For the purposes of this work section the following definition applies:

- Green concrete: Concrete which has set but not appreciably hardened.

1.5 TOLERANCES

Formed surfaces

Quality of the surface finish: To AS 3610.1 Table 3.3.2.

Unformed surfaces

Unformed surfaces flatness: To the Flatness tolerance class table, using a straightedge placed anywhere on the surface in any direction, for the documented class of finish.

Flatness tolerance class table

Class	Measurement	Maximum deviation (mm)
A	2 m straightedge	4
B	3 m straightedge	6
C	600 mm straightedge	6

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Evaluation of the off-form finishes.
- Evaluation of surface finish.

2 PRODUCTS

2.1 MATERIALS

Surface hardeners, sealants and protectors

Supply: if documented, provide proprietary products to the manufacturer's recommendations.

Slip resistance treatment

Slip resistance classification: To AS 4586.

3 EXECUTION

3.1 SURFACE MODIFIERS

General

Application: Apply to clean surfaces to the **manufacturer's** recommendations.

3.2 FORMED SURFACES

General

Surface finish: Provide formed concrete finishes as documented in the Formed surface finishes schedule.

Damage: Do not damage concrete works through premature removal of formwork.

Curing

General: If formwork is stripped before the minimum curing period for the concrete has elapsed, continue curing the exposed faces as soon as the stripping is completed.

Evaluation of formed surfaces

General: If evaluation of formed surface tolerance or colour is required, complete the evaluation before surface treatment.

Surface repairs

Method: If surface repairs are required, submit proposals.

Finishing methods

Details: If soffits of concrete elements or faces of concrete columns are to have a finish other than an off-form finish, provide finishes as documented.

Float finishes:

- Grout floated finish: Remove the vertical face formwork while the concrete is green. Dampen the surface and spread a slurry, using hessian pads or sponge rubber floats. Remove surplus slurry and work until a uniform colour and texture are produced.

3.3 UNFORMED SURFACES

General

Surface finish: As documented in the Unformed surface finishes schedule.

Finished levels: Strike off, screed and level slab surfaces to finished levels and to the flatness tolerance class documented.

Surface repairs

Method: If surface repairs are required, submit proposals.

Finishing methods – primary finish

Machine float finish:

- After levelling, consolidate the surface using a machine float.
- Cut and fill and refloat immediately to a uniform, smooth, granular texture.
- Hand float in locations inaccessible to the machine float.

Steel trowel finish: After machine floating finish, as follows:

- Use power or hand steel trowels to produce a smooth surface relatively free from defects.
- When the surface has hardened sufficiently, re-trowel to produce the final consolidated finish free of trowel marks and uniform in texture and appearance.

Wood float finish: After machine floating, use wood or plastic hand floats to produce the final consolidated finish free of float marks and uniform in texture and appearance.

Fine Broom finish: After machine floating and steel trowelling use a broom across the surface to produce a coarse even textured transverse-scored surface.

Finishing methods – supplementary finish

Wood float finish: use wood or plastic hand floats to produce the final consolidated finish free of float marks and uniform in texture and appearance.

4 SELECTIONS

Formed surface finishes schedule

Location	Instu beams and columns and external instu Wall
Surface finish class to AS 3610.1	Class 2
Formwork lining type	Form Ply or equivalent
Surface finish type	Smooth
Evaluation	Visual from 1, away in accordance with AS3610

Unformed surface finishes schedule

Location	External Steps, Ramp and Verandah Slab, footpaths
Flatness tolerance class	+/- 3mm over 3m
Primary finish	Fine Broom finish
Supplementary finish	75mm wide smooth edge trowel to either side of the verandah joints and perimeter of ramps
Colour:	natural
Slip resistance treatment:	Fine broom finish across the surface
Slip resistance classification	R11

0382 LIGHT TIMBER FRAMING

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide light timber floor, wall and roof framing, as documented.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.
- 0181 Adhesives, sealants and fasteners.
- 0185 Timber products, finishes and treatment.

1.3 INTERPRETATION

Definitions

General: For the purposes of this work section the definitions given in the AS 1684 series apply.

1.4 STANDARDS

General

Framing: To AS 1684.2, AS 1684.3 or AS 1684.4, as appropriate.

Design: To AS 1720.1.

1.5 TOLERANCES

Floors

Maximum deviation from a 3 m straightedge laid in any direction on the floor framing: 5 mm.

Walls tolerances table

Property	Permitted deviation
Generally: Verticality in 2 m	1:500
Generally: Flatness ¹ in 2 m	3 mm
Features ² : Verticality in 2 m	1:1000
Features ² : Horizontality in 2 m	1:1000
1. Flatness: Measured under a straightedge laid in any direction on a surface.	
2. Features: Conspicuous horizontal or vertical lines including external corners, parapets, reveals, heads, sills.	

1.6 SUBMISSIONS

Certification

Requirement: Submit certification by a professional engineer of the design, documentation and erected work to AS 1684 and AS 1720.1. Include the following:

- Reactions: Provide location and magnitude of reactions to be accommodated by the support structure.
- Floor, wall and roof frame member sizes: A schedule of proposed member sizes, certified as meeting stated project requirements for spans, spacings, loadings and deflections.
- Species and stress grade.

Products and materials

Identification: Submit a supplier's certificate (which may be included on an invoice or delivery docket) verifying that the timber conforms to the documented requirements.

Inspection: Submit the inspection authority's certificate verifying that the timber conforms to the documented requirements.

Moisture content: Submit records of moisture content.

CCA treated timber: If proposed to be used, provide details.

Shop drawings

General: Submit shop drawings, to a scale that best describes the detail, certified by a professional engineer stating that the design has been carried out to AS 1684 and AS 1720.1 requirements for the documented configurations and loadings. Include the following:

- Prefabricated roof trusses:
 - . Marking plans.
 - . Truss plan layout.
 - . Elevations, with the arrangement of members allowing for the accommodation of in-roof services and the size and section type of each member.
 - . Camber of all elements.
 - . The method of assembly, connection, lifting, holding down and bracing.

Subcontractors

Prefabricated items: Submit the name and contact details of proposed manufacturers, suppliers and installers.

1.7 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Prefabricated units before installation.
- Fabricated items before priming or water-repellent treatment.
- Bolts after final tightening.
- Timber work after erection but before it is covered.

2 PRODUCTS

2.1 GENERAL

Storage and handling

General: Do not distort or damage timber or timber products.

Moisture content: Maintain the equilibrium moisture content of seasoned timber.

Protection from weather: Provide temporary protection for members until permanent covering is in place.

Marking

Branding: Permanently mark structural timber under the authority of a recognized product certification program applicable to the product. Locate the brand mark on faces or edges which will be concealed in the works. For timbers not covered by the branding provisions of Australian standards or regulations for which branding is required, include the following data:

- Stress grade.
- Method of grading.
- If seasoned, the word, SEASONED or DRY, or an abbreviation of seasoned, such as SEAS or S.
- The certification mark of the product certification program.
- The applicable standard.

Trusses: Permanently mark each truss to show:

- Project identification.
- Manufacturer.
- Tag or number.
- Location.
- Support points.

2.2 COMPONENTS

Fasteners:

General: Conform to the 0181 Adhesives, sealants and fasteners work section.

Installation: Do not split or otherwise damage the timber.

Coating: Before placing bolts in contact with CCA treated timber, coat the shank of the bolt in a grease or bituminous coating.

Damp-proof course

Material: To AS/NZS 2904.

Type: Therma Kraft Super course 500 DPC or equally approved.

3 EXECUTION

3.1 WALL FRAMING

Bracing

Bracing material: Treated Timber HQ.1 min.

Additional support

Requirement: Provide additional support in the form of noggings, trimmers and studs for fixing lining, cladding, hardware, accessories, fixtures and fittings, as required.

Spacing of noggings: Maximum 1350 mm centres.

Vermis barriers

Requirement: Provide vermin barriers as follows:

- Brick veneer barrier: Close nail 10 mm galvanized steel wire mesh to the underside of the bottom plate of external stud walls, extending across the cavity for building into brickwork.

Damp-proof course

Requirement: Provide damp-proof courses under the bottom plate of stud walls built off slabs or masonry dwarf walls, as follows:

- External walls (not masonry veneer): Turn up at least 75 mm on the inside and tack. Project 10 mm beyond the external slab edge or dwarf wall and turn down at 45°.
- Walls of bathrooms, shower rooms and laundries: Turn up at least 150 mm on the wet side and tack to studs.

Installation: Lay in long lengths. Lap full width at angles and intersections and at least 150 mm at joints.

Junctions: Preserve continuity at junctions of damp-proof courses, sarking and waterproof membranes.

Flashings

Location: Provide flashings to external openings to prevent the entry of moisture. Form trays at the ends of all flashings.

Masonry veneer construction: Extend flashing across cavities and build into brickwork.

3.2

3.3 CEILING FRAMING

Wall plates

Fixing: Fix timber wall plates to masonry, with straps, bolts or both.

Fixing plates

Requirement: Provide 45 mm minimum thick timber fixing plates to transfer the design loads where timber joists, rafters or purlins bear on or into steel members. Bolt to the steel member at maximum 500 mm centres and at maximum 100 mm from the end of the fixing plate.

Beam framing

Ridge straps: Butt ends of rafters together at ridge, and strap each pair together with 900 mm long steel strap passing over the ridge, triple nail to each rafter.

Water tank or heater in roof space: Provide a support platform to AS/NZS 3500.4 clause 5.5.

Additional support: Provide a frame member behind every joint in fibre cement sheeting or lining Completion

Tightening

Requirement: Tighten bolts, screws and other fixings so that joints and anchorages are secure at the date of practical completion.

3.4 COMPLETION

Tightening

Requirement: Tighten bolts, screws and other fixings so that joints and anchorages are secure at the date of practical completion.

0423P ROOF SHEETING

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide and install roof cladding made from COLORBOND® steel and associated work.

1.2 COMPANY CONTACTS

BlueScope technical contacts

Website: www.steel.com.au/support

1.3 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.4 MANUFACTURER'S DOCUMENTS

Technical manuals

Website: www.steel.com.au/library.

1.5 SUBMISSIONS

Operation and maintenance manuals

On completion: Submit a manual of recommendations from the roofing manufacturer or supplier for the maintenance of the roofing system including, frequency of inspection and recommended methods of access, inspection, cleaning, repair and replacement.

Products and materials

Type tests: As appropriate for the project, submit evidence of conformance to the following:

- Metal roofing: Roof sheeting and fastenings to AS 1562.1 Section 5 for resistance to concentrated load and to wind pressure.

Samples

Requirement: Submit samples of the following:

- Custom profiled flashings and cappings.
- Sheet metal finishes showing the range of variation available.
- Sealants.
- Trims and accessories with a colour finish.

Warranties

Roofing materials: Submit the **manufacturer's** published product warranties.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Roof supports.
- Parts of the roofing, sarking, vapour barrier, insulation and roof plumbing installation before covering up or concealing.

2 PRODUCTS

2.1 GENERAL

Product substitution

Other products: Conform to PRODUCTS, GENERAL, Substitutions in the 0171 General requirements worksection. Alternative equally approved products may be presented as substitutes, however refer the general section for substitution process.

Storage and handling

Storage: Store metal roofing materials away from uncured concrete and masonry, on a level base. Do not store materials in contact with other materials which may cause staining, denting or other surface damage.

Handling: Handle roofing materials as follows:

- Use gloves when handling precoated metal roofing material.
- Use soft soled shoes when fixing or working on roofs.
- Protect edges and surfaces from damage. Do not drag sheets across each other or over other materials.

Marking

Identification: Marked to show the following:

- **Manufacturer's identification.**
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.
- Material composition and characteristics such as volatility, flash point, light fastness, colour and pattern.

2.2 COMPONENTS

Fasteners

Finish: Prefinished exposed fasteners with an oven baked polymer coating to match the roofing material.

Fastenings to timber battens: Fastenings long enough to penetrate the thickness of the batten without piercing the underside.

Profiled fillers

Type: Purpose-made closed cell polyethylene foam profiled to match the roofing profile.

Location: Profiled fillers under flashings to the following:

- Ridges.
- Eaves.
- Lapped joints in roof sheeting.

Safety mesh

Standard: To AS/NZS 4369.

2.3 SHEET METAL ROOFING

Standards

Design, installation and materials: To AS 1562.1.

Stainless steel: To ASTM A240/A240M.

Roofing product

Product brand: BHP Colorbond

Profile: Trimdek or equally approved Product

material type: Colour Bond ULTRA Thickness, Base

Metal Thickness (BMT) (mm): 0.55

Colour: TBC

2.4 ROOF PLUMBING

General

Standard: To AS/NZS 3500.3.

Requirement: Provide the flashings, cappings, gutters, rainwater heads, outlets and downpipes required to complete the roof system.

Materials

Metal rainwater goods: To AS/NZS 2179.1.

Metal: 0.55 BMT Colourbond Ultra or equally an approved product.

PVC-U rainwater goods and accessories: To AS/NZS 3500.3.

Flashings and cappings

Standard: To AS/NZS 2904.

Product: 0.55 BMT Colourbond Ultra or equally an approved product.

Material and colour: Match roof sheeting.

Rib notching: Match roof sheeting.

Flashing and capping types: 0.55 BMT Colourbond Ultra or equally an approved product.

Ridge and barge cappings

Product: 0.55 BMT Colourbond Ultra or equally an approved product.

Material and colour: Match roof sheeting.

Capping types: 0.55 BMT Colourbond Ultra notched to match roofing profile or equally an approved product.

Eaves gutters

Product: 0.55 BMT Colourbond Ultra or equally an approved product.

Type: Refer to contract drawings for size.

Material and colour: Match roof sheeting.

Matching fascia/ridge: If the selected eaves gutter is a proprietary high front pattern forming part of a combined system of gutter, fascia and barge, provide the matching proprietary fascias and barge cappings to roof verges and edges.

Downpipes

Product: Nylux or Marley or equally an approved product.

Material: uPVC

Colour: Painted- Dulux Paints

Profile: Round

Size: Refer drawings

2.5 ROOF PLANT ACCESS

Description

General: Refer to Building Access section.

3 EXECUTION

3.1 INSTALLATION

Protection

General: Keep the roofing and rainwater system free of debris and loose material during construction, and leave them clean and unobstructed on completion. Repair damage to the roofing and rainwater system.

Thermal movement

Requirement: Allow for thermal movement in the roof installation and the structure, including movement in joints and fastenings.

Plan type sheets

Removal: Install sheets so that individual sheets can be removed without damage.

Metal separation

Requirement: Prevent direct contact between incompatible metals, and between green hardwood or chemically treated timber and aluminium or coated steel, by one of the following methods:

- Applying an anti-corrosion, low moisture transmission coating to contact surfaces.
- Inserting a separation layer.

Tolerances

Requirement: To AS 1562.1 clause 4.2.

3.2 BUILDING ELEMENTS

Ridges and eaves

Sheet ends: Treat as follows:

- Project sheets 50 mm into gutters.
- Close off ribs at bottom of sheets using mechanical means or with purpose-made fillers or end caps.
- Turn pans of sheets up at tops and down into gutters by mechanical means.
- Pre-cut notched eaves flashing and birdproofing, if required.
- Close off ridges with purpose-made ridge fillers of closed cell polyethylene foam.

Ridge and barge

Capping: Finish off along ridge and verge lines with purpose-made ridge capping or barge rolls.

End laps

General: If end laps are unavoidable, and the sheet profile is not suitable for interlocking or contact end laps, construct a stepped type lap.

3.3 ROOF PLUMBING

Joining sheet metal rainwater goods

Butt joints: Make joints over a backing strip of the same material.

Soldered joints: Do not solder aluminium or aluminium/zinc-coated steel.

Sealing: Seal fasteners and mechanically fastened joints. Fill the holes of blind rivets with silicone sealant.

Flashings

Installation: Flash roof junctions, upstands, abutments and projections through the roof. Preform to required shapes if possible. Notch, scribe, flute or dress down as necessary to follow the profile of adjacent surfaces. Mitre angles and lap joints 150 mm in running lengths. Provide matching expansion joints at 6 m maximum intervals.

Upstands: Flash projections above or through the roof with two part flashings, consisting of a base flashing and a cover flashing, with at least 100 mm vertical overlap. Provide for independent movement between the roof and the projection.

Large penetrations in low pitch roofs: Extend the base flashing over the roofing ribs to the ridge to prevent ponding behind the penetrating element.

Wall abutments: Where a roof abuts a wall, provide overflashing as follows:

- Raking in concrete: Turn 25 mm into joints or grooves, wedge at 200 mm centres with compatible material and point up.

Fixing to pipes: Solder or seal with neutral cured silicone rubber and secure with either of the following:

- Clamping ring.
- Proprietary flexible clamping shoe with attached metal surround flashing.

Gutters

General: Form stop ends, downpipe nozzles, bends and returns. Dress downpipe nozzles into outlets. Provide overflows to prevent back-flooding.

Gutter support: Provide support gutters.

Support: Colour bond Ultra 0.55 BMT Gutter at 450 c/s, or equally an approved product.

Downpipes

General: Prefabricate downpipes to the required section and shape where possible. Connect heads to gutter outlets and, if applicable, connect feet to rainwater drains.

Access cover: Provide a removable watertight access cover at the foot of each downpipe stack.

Downpipe support: Provide supports and fixings for downpipes.

3.4 TESTING

Site tests:

Internal downpipes: Test each stack hydrostatically in stages. Run each test over two storeys high for two hours. Remedy defects and retest if necessary.

3.5 COMPLETION

Cleaning

Remove: Excess debris, metal swarf, solder, sealants and unused materials.

Exposed metal surfaces: Clean surfaces of substances that interfere with uniform weathering or oxidation.

Replace: Materials that have been damaged or deteriorated.

Roof plumbing: Clean out spoutings, gutters and rainwater pipes after completion of roof installation.

Warranties

Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and installer.

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the supplier/manufacturer.

0451B WINDOWS AND GLAZED DOORS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide windows and glazed doors, as documented.

Performance

Product design: Provide windows with sashes capable of being opened to satisfy the documented maintenance requirements.

1.2 CROSS REFERENCES

1.3 GENERAL

Requirement: Conform to the following:

- 0171 General requirements.

Manufacturer's documents

Manufacturer's and supplier's documents related to this work section are: Designer nominated Glass and Aluminium systems and Glazeway or equally approval on supply on product information and confirmation of suitability.

1.4 STANDARDS

General

Selection and installation: To AS 2047.

Glazing

Glass type and thickness: To AS 1288, if no glass type or thickness is nominated.

Materials and installation: To AS 1288.

Quality requirements for cut-to-size and processed glass: To AS/NZS 4667.

Terminology for work on glass: To AS/NZS 4668.

1.5 SUBMISSIONS

Certification

Conformance: Submit evidence that window and door assemblies conform to AS 2047.

Sealant compatibility: Submit statements from all parties to the installation certifying the compatibility of sealants and glazing systems to all substrates.

Ceramic-coated spandrel glass: Submit a report, from the manufacturer, certifying that the glass meets the Fallout Resistance Test requirements of ASTM C1048.

Opacified glass: Submit a report, from the manufacturer, certifying that the proposed method of opacifying the glass will not be detrimental to the glass or affect the glass product warranty.

Operation and maintenance manual

Window and door assemblies: Submit the window and glazed door manufacturer's published instructions for operation, care and maintenance.

Hardware: Submit the manufacturer's published recommendations for use, care and maintenance.

Products and materials

Type tests: Submit results, as follows:

- Fire resistance level.
- Weighted sound reduction index (R_w): To AS/NZSISO 717.1.

Samples

Window and door framing: Submit the following:

- Accessory and hardware items documented descriptively or by performance (i.e. not documented as proprietary items) including locks, latches, handles, catches, sash operators, anchor brackets and attachments, masonry anchors and weather seals (pile or extruded).

- Colour samples of prefinished production material (e.g. anodised or organic coated extrusions and sheet), showing the limits of the range of variation in the selected colour.
- Joints made by proposed techniques.
- Sections proposed to be used for frames, sashes, louvers and slats.
- Label each sample, giving the series code reference and date of manufacture.

Glazing: Submit samples of glazing materials, each at least 200 x 200 mm, showing documented visual properties and the range of variation, if any, for each of the following types of glass or glazing plastics:

- Tinted or coloured glass or glazing plastics.
- Surface modified or surface coated glass.
- Patterned or obscured glass or glazing plastics.
- Ceramic coated glass.
- Wired glass.
- Mirror glass.

Hardware: Submit samples of generic hardware, not documented as proprietary terms, as follows:

- Particular samples required:
 - o Window Screen and frame system for all windows.
 - o Part Door Leaf sample for Metal faced and Internal Solid Core door

Shop drawings

Submit shop drawings, to a scale that best describes the detail, showing the following:

- Full size sections of members.
- Hardware, fittings and accessories including fixing details.
- Junctions and trim to adjoining surfaces.
- Layout (sectional plan and elevation) of the window assembly.
- Lubrication requirements.
- Methods of assembly.
- Methods of installation, including fixing, caulking and flashing.
- Provision for vertical and horizontal expansion.
- Method of glazing, including the following:
 - o Rebate depth.
 - o Edge restraint.
 - o Clearances and tolerances.
 - o Glazing gaskets and sealant beads.

Subcontractors

General: Submit names and contact details of proposed manufacturers and installers.

Evidence of experience: Over 10 years' experience in Samoa.

Warranties

General: Submit warranties as documented.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Openings prepared to receive windows (where windows are to be installed in prepared openings).
- Fabricated window assemblies at the factory ready for delivery to the site.
- Fabricated window assemblies delivered to the site, before installation.
- Commencement of window installation.

2 PRODUCTS

2.1 GENERAL

Fire-resistance of building elements

Fire-resistance level: To AS 1530.4.

Marking

Identification: Marked to show the following:

- **Manufacturer's** identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.
- Material composition and characteristics such as volatility, flash point, light fastness, colour and pattern.

2.2 GLASS

Glass and glazing materials

Glass: Free from defects which detract from appearance or interfere with performance under normal conditions of use.

Glazing plastics: Free from surface abrasions, and warranted by the manufacturer for 10 years against yellowing or other colour change, loss of strength and impact resistance, and general deterioration.

Safety glasses

Standard: To AS/NZS 2208.

Certification: Required.

Certification provider: An organization accredited by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ).

Type: Grade A to AS 1288.

Heat soaking

Requirement: All toughened glass products.

Standard: To EN 14179-1.

Unacceptable blemishes in heat-treated flat glass (including tinted and coated glass)

Standard: To AS/NZS 4687.

Insulating glass units (IGUs)

Selection and installation: To AS/NZS 4686.

2.3 GLAZING MATERIALS

General

Glazing materials: Provide including putty, glazing compounds, sealants, gaskets, glazing tapes, spacing strips, spacing tapes, spacers, setting blocks and compression wedges appropriate for the conditions of application and the required performance.

Joining materials

Requirement: Provide joining and pointing materials to manufacturer's recommendations which are compatible with each other and with the contact surfaces and non-staining to finished surfaces. Do not provide bluminous materials on absorbent surfaces.

Elastomeric sealants

Sealing compound (polyurethane, polysulfide, acrylic): To ASTM C920 or ISO 11600.

Sealing compound (silicone): To ASTM C920 or ISO 11600.

Sealing compound (butyl): To ASTM C1311.

Priming

Application: Apply the manufacturer's recommended primer to the surfaces in contact with sealant materials.

Control joints

Depth of elastomeric sealant: One half the joint width or 6 mm, whichever is the greater.

Foamed materials (in compressible fillers and backing rods): Closed-cell or impregnated types which do not absorb water.

Bond breaking: Provide backing rods, and other back-up materials for sealants, which do not adhere to the sealant.

2.4 GLASS IDENTIFICATION

Safety glazing materials

Identification: To AS 1298.

Noise reducing glazed assemblies

Labeling: Label each panel with a legible non-permanent mark, stating and certifying the R_w rating, and identifying the testing authority. Remove when directed.

2.5 INSECT SCREENS

Fixed screens

General: Provide fixed screens to the window frames with a clipping device which permits removal for cleaning.

Hinged screens

General: Hinge at the top to give access to opening sash.

Roll up screens

General: Provide a proprietary retractable insect screen, comprising aluminium frame with baked enamel finish, fiberglass mesh beaded into the frame, and a retraction system including tension spring, nylon bearings, positive self-locking device, and plastic sealing strip at sill.

Sliding screens

General: Provide a matching aluminium head guide, sill runner, and frame stile sections for screens not part of the window frame.

Hardware: Nylon slide runners and finger pull handle. Provide pile strip closers against sash where necessary to close gaps.

Aluminium framed screens

General: Provide aluminium extruded or folded box frame sections with mesh fixing channel, mitred, staked and screwed at corners. Provide an extended frame section where necessary to adapt to window opening gear.

Mesh: Bead the mesh into the frame channel with a continuous resilient gasket, so that the mesh is taut and without distortion.

2.6 SECURITY WINDOW GRILLES

General

Requirement: Provide proprietary metal security grille screens, or operable screen and frame, fixed to the building structure with tamper resistant fastenings.

Security window grilles: To AS 5039.

Installation: To AS 5040.

2.7 ALUMINIUM FRAME FINISHES

Powder coatings

Standard: To AS 3715.

Product: Designer nominated Glass and Aluminium systems

Type: 100 x Shop frame for all Doors and windows.

Colour: Powder Coated.

Anodised

Standard: To AS 1231.

Thickness: 15 microns to 20 microns.

Colour: Powder Coated

2.8 ANCILLARY MATERIALS

Trims

Timber: Solid HQ 1 timber at least 19 mm thick, mitred at corners.

Extruded gaskets and seals

General: Provide seals as documented in the Window and door seal schedule.

Location or function: Allow for top and bottom weather

Materials: Non-cellular (solid) elastopressive seals as follows:

- Flexible polyvinyl chloride (PVC): To BS 2671, 100% solids with high consistency, ultraviolet stabilized.
- Rubber products (neoprene, ethylene propylene diene monomer (EPDM) or silicone rubber): To BS 4255-1.

Flashings

General: Corrosion resistant, compatible with the other materials in the installation, and coated with a non-staining compound where necessary.

Standard: To AS/NZS 2904.

Nylon brush seals

General: Dense nylon bristles locked into galvanized steel strips and fixed in a groove in the edge of the door or in purpose-made anodised aluminium holders fixed to the door with double sided PVC foam tape.

Pile weather strips

Standard: To AAMA 701/702.

Location: To all Door stiles

Materials: Polypropylene or equivalent pile and backing, low friction silicone treated, ultraviolet stabilised.

Finned type: A pile weather seal with a central polypropylene fin bonded into the centre of the backing rod and raised above the pile level.

Weather bars

General: Provide a weather bar under hinged external doors, locate under the centres of closed doors.

2.9 HARDWARE

Hardware: documented generically

General: Provide hardware of sufficient strength and quality to perform its function, appropriate to the intended conditions of use, compatible with associated hardware, and fabricated with fixed parts firmly joined.

Locks and latches

Standard: To AS 4145.3.

Window catches: Provide 2 catches per sash to manually latched awning or hopper sashes over 1000 mm wide.

Sash balances

Requirement: Match the spring strength of the balances to the sash weight they support.

Sash operators

Requirement: As documented.

3 EXECUTION

3.1 GLASS PROCESSING

General

Processing: Perform required processes on glass, including cutting, obscuring, silvering and bending. Form necessary holes, including for fixings, equipment, access openings and speaking holes. Process exposed glass edges to a finish not inferior to ground arises.

3.2 INSTALLATION

Glazing

General: Install the glass as follows:

- Permanently fix in place each piece of glass to withstand the normal loadings and ambient conditions at its location without distortion or damage to glass and glazing materials.
- No transfer of building movements to the glass.
- Watertight and airtight for external glass.

Temporary marking: Use a method which does not harm the glass. Remove marking on completion.

Toughened glass: Do not cut, work, or permanently mark after toughening. Use installation methods which prevent the glass making direct contact with metals or other non-resilient materials.

Heat absorbing glass: In locations exposed to direct sunlight, provide wheel cut edges free from damage or blemishes, with minimum feather.

Preglazing

Window assemblies and glazed doors: Supply inclusive of glazing, shop preglazed.

Site glazing

Do not fit on site, all glazing must be installed within the workshop prior to transport to site.

External timber framed glazing: Glaze with putty.

Windows and glazed doors

General: Install windows and glazed doors frames as follows:

- Plumb, level, straight and true within building tolerances.
- Fixed or anchored to the building structure in conformance with the wind action loading requirements.
- Isolated from any building loads, including loads caused by structural deflection or shortening.
- Allow for thermal movement.

Weatherproofing

Flashing and weathers: Install flashings, weather bars, drips, storm moulds, caulking and pointing so that water is prevented from penetrating the building between the window frame and the building structure under the prevailing service conditions, including normal structural movement of the building.

Fixing

Fasteners and fastener spacing: Conform to the recommendations of the manufacturer.

Fasteners: Contact fasteners.

Packing: Pack behind fixing points with durable full width packing.

Prepared masonry openings: If fixing of timber windows to prepared anchorages needs fastening from the frame face, sink the fastener heads below the surface and fill the sinking flush with a material compatible with the surface finish.

Joints

General: Make accurately fitted tight joints so that neither fasteners nor fixing devices such as pins, screws, adhesives and pressure indentations are visible on exposed surfaces.

Sealants: If priming is recommended, prime surfaces in contact with jointing materials. If frames are powder coated, apply a neutral cure sealant.

Operation

General: Make sure moving parts operate freely and smoothly, without binding or sticking, at correct tensions or operating forces and are lubricated.

Protection

Removal: Remove temporary protection measures from the following:

- Contact mating surfaces before joining up.
- Exposed surfaces.

Repair of finish

Polyester or fluoropolymer coatings: Contact supplier for approval to apply touch up products, otherwise replace damaged material.

Trim

General: Provide mouldings, architraves, reveal linings, and other internal trim using materials and finishes matching the window frames. Install to make neat and clean junctions between frames and the adjoining building surfaces.

3.3 HARDWARE

Fasteners:

Materials: Use materials compatible with the item being fixed and of sufficient strength, size and quality to perform their function.

- Concealed fixings: Provide a corrosion-resistant finish.
- Exposed fixings: Match exposed fixings to the material being fixed.

Support: Provide appropriate back support (for example lock stiles, blocking, wall noggings and backing plates) for hardware fixings.

- Hollow metal sections: Provide backing plates drilled and tapped for screw fixing, or provide rivet nuts with machine thread screws. Do not use self-tapping screws or pop rivets.

Proprietary window systems

Requirement: Provide the standard hardware and internal fixing points for personnel safety harness attachment, if required by and conforming to the governing regulations.

Operation

General: Make sure working parts are accurately fitted to smooth close bearings, without binding or sticking, free from rattle or excessive play, lubricated where appropriate.

Supply

Delivery: Deliver window hardware items, ready for installation, in individual complete sets for each window set, as follows:

- Clearly labelled with the intended location.
- In a separate dust and moisture proof package.
- Including the necessary templates, fixings and fixing instructions.

3.4 COMPLETION

Hardware

Adjustment: Leave the hardware with working parts in working order, and clean, undamaged, properly adjusted, and lubricated where appropriate.

Trade clean

Method: Clean with soft clean cloths and clean water, finishing with a clean squeegee. Do not use abrasive or alkaline materials.

Extent: All frames and glass surfaces inside and out.

Warranties

Window and door assemblies: Submit the **manufacturer's** published product warranties.

Hardware: Submit the **manufacturer's** published product warranties.

4 SELECTIONS

4.1 PERFORMANCE

External Door and Window Minimum Performance (Design Loads)

Property	Crime Safe Screen and Frame and Window Frames
Ultimate limit state (ULS) wind pressure (Pa)	3.65 kPa
Serviceability limit state (SLS) wind pressure (Pa)	2.40 kPa
Water penetration resistance (Pa)	300Pa
Impact Loads from Wind Borne Debris (Clause 2.5.8 AS 1170.2 – 2011)	Vr 80m/s

4.2 GLASS DOOR SCHEDULE

Glass Door schedule

Property	A - Hinge Glass (Internal and External)	B - Hinge Double Glass (Internal and External)	C - Internal Sliding Glass (Internal)	D - Internal Sliding Glass (External)
Frame	Glass and Aluminium or equivalently an approved product	Glass and Aluminium or equivalently an approved product	Glass and Aluminium or equivalently an approved product	Glass and Aluminium or equivalently an approved product
Frame description	A: usually 100 mm (external) x 45 mm (internal) pocket glazed framing system suitable for shopfront, entry door & general framing applications. Hinged standard profile - 45 mm deep, heavy duty profile - 50 mm deep	B: usually 100 mm (external) x 45 mm (internal) pocket glazed framing system suitable for shopfront, entry door & general framing applications. Hinged standard profile - 45 mm deep, heavy duty profile - 50 mm deep	C: Sliding Door system with one fixed panel and single sliding door and window compliant	D: Sliding Door system with bottom and fixed back and Jamb. Fixtures the bottom track and it is flush with the external and internal finish face lines.
Frame material	Aluminium	Aluminium	Aluminium	Aluminium
Frame finish	Powder Coated	Powder Coated	Powder Coated	Powder Coated
Fixed screen, Frame material and finish	Powder Coated	Powder Coated	Powder Coated	Powder Coated
Fixed screen, Mesh type	Stainless Steel - Powder coated black	Stainless Steel - Powder coated black	Stainless Steel - Powder coated black	Stainless Steel - Powder coated black
Glazing	6.38mm Laminated Glass	6.38mm Laminated Glass	6.38mm Laminated Glass	6.38mm Laminated Glass
Safety markings	None with Opaque	None with Opaque	None with Opaque	None with Opaque
Hardware	Refer to Door Specification	Refer to Door Specification	Refer to Door Specification	Refer to Door Specification
Notes	Allow for a minimum of 4-5% bulge per jamb and 3-5% per head with mesh screen fabric as per manufacturer's specification.			

Glazed entrance schedule

Property	A - Internal Front Window	B - Internal Sliding Window	C - External Glass Lobby Window, Refer to Louver section
Product name	Glass and Aluminium or equally approved product.	Glass and Aluminium or equally approved product.	Glass and Aluminium or equally approved product.
Proprietary suite	148 Series is a 47 series stile framed window system with built operable sash and fixed panel glazing capabilities.	131 Series is a 47 series stile framed window system for sliding coupled with the fixed window system.	150 Series with Inseaway Alum 150 Blade Sliding fixed system fixed within.
Suite description	As noted above	As noted above.	Louvre gallery accommodate 12, 120 or 152 mm glass, aluminium and/or timber blade options in single and multiple bay configurations. Allow to reinforce frame for design wind pressure
Frame material	Aluminium	Aluminium	Aluminium
Frame finish	Fluoride Coated	Fluoride Coated	Fluoride Coated
Fixed section, Frame and material and finish	N/A	N/A	Refer to Louver section
Fixed section, Glass type	N/A	N/A	Refer to Louver section
Glazing	6.38mm Clear Laminated glass.	6.38mm Clear Laminated glass.	6.38mm Anodized Grey tint Glass (Refer to Louver section for all InterGlaze areas) Allow to tint glass to suit dimensions in both directions
Safety markings	NE -	NE -	NE -
Hardware	Allow for Handles and keyset locks to close and secure the window.	Allow for Handles and keyset locks to close and secure the window.	Allow for Handles and keyset locks to close and secure the locks.

4.3 SCREENS

Screen schedule

Property	Crimesafe external Screen and Frame
Product name	Crime Safe screen and Cyclone frame or equally an approved product.
Generic description	Cyclone Debris Screen for region C and D . This includes the Crimesafe 100mm Cyclone Build Out Frame fixed to block wall complete with Crimesafe 1.2M 304 Stainless steel powder coated screen
Frame material	Aluminium
Frame finish	Powder Coated
Mesh type	1.2mm 304 Stainless steel screw clamped into a commercial frame.
Design Wind Speed (Impact Speed)	44m/s

0453B DOORS AND ACCESS PANELS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide doors, frames, doorsets, security screen doors and fire-resisting doorsets, as documented.

Prison Holding Cells

Requirement: Refer to attached "Cell Security Ltd" Technical Catalogue for relevant detail information in relation to Drawing details.

1.2 GENERAL

Requirement: Conform to the following:

- 0171 General requirements.
- 0455 Door hardware.

1.3 INTERPRETATION

Definitions

General: For the purposes of this worksection the following definitions apply:

- **Balanced construction**: Flush door construction where the facings on one side of the core are nominally equal in thickness, grain direction, properties and arrangement to those on the other side of the core, such that uniformly distributed changes in moisture content will not cause warpage.
- **Cellular core door**: Timber hollow core doors with cellulose mesh grid or honeycomb core encased by timber rails and stiles.
- **Door frame**: Includes jamb linings.
- **Doorset**: An assembly comprising a door or doors and supporting frame, guides and tracks including the hardware and accessories necessary for operation.
- **Fire-resisting doorset**: A doorset which retains its integrity, provides insulation and limits, if required, the transmittance of radiation in a fire.
- **Smoke-doorset**: A doorset which restricts the passage of smoke.
- **Flush door**: A door leaf with two plane faces which entirely cover and conceal its structure. It includes doors with intermediate rail, cellular, blockboard, medium density fibreboard (MDF) and particleboard cores.
 - **Solid core door**: A flush door with a solid core continuous between stiles and rails or edge strips and fully bonded to the faces.
 - **Hollow core door**: Flush door leaf with air spaces between the two outer facings, constructed with either a cellular core or skeleton core.
- **Joinery door**: A door leaf with either stiles and rails, or stiles, rails and muntins, framed together. A joinery door may also incorporate glazing bars.
- **Louvered door**: A joinery door with framed openings filled in with louvre blades.
- **Panelled door**: A joinery door with framed openings filled in with panels including glass.

1.4 SUBMISSIONS

Products and materials

Type tests: Submit results, as follows:

- Fire-resisting and smoke doorsets: To AS 1905.1 and BCA Spec C3.4.
- Weighted sound reduction index (R_w): To AS/NZS ISO 717.1.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Door frames in place before building in to masonry.
- Door frames installed before fixing trim.

2 PRODUCTS

2.1 FRAMES

Aluminium frames

General: Assembled from aluminium sections, including accessories such as buffers, pile strips, strike plates, fixing ties or brackets and cavity flashing, with provision for fixing documented hardware.

Threshold: If the frame includes a threshold member, provide a self-draining section with anti-skid surface.

2.2 DOORS

General

Doors: Proprietary products manufactured for interior or exterior applications and for the finish required.

Materials

Standards: Conform to the following:

- Decorative laminated sheets: To AS/NZS 2924.1.
- Wet processed fibreboard (including hardboard): To AS/NZS 1859.4.
- Dry processed fibreboard (including medium density fibreboard): To AS/NZS 1859.2.
- Particleboard: To AS/NZS 1859.1.
- Plywood and blockboard for interior use: To AS/NZS 2270.
- Plywood and blockboard for exterior use: To AS/NZS 2271.
- Seasoned cypress pine: To AS 1810.
- Timber – hardwood: To AS 2796.1.
- Timber – softwood: To AS 4785.1.

Certification

Panel doors: Provide panels branded under the authority of a recognised certification program applicable to the product. Locate the brand on faces or edges which will be concealed in the works.

Joinery doors

General: Provide joinery doors, as documented.

Flush doors

General: Provide flush doors of balanced construction.

Solid core: Solid flush doors as follows:

- Flush door with blockboard: Core plate of timber strips laid edge to edge, fully bonded to each other and to facings each side of no less than two sheets of timber veneer.
- Flush doors with particleboard: Core plate of particleboard fully bonded to facings each side of no less than two sheets of timber veneer.
- Allow for metal 1.50mm BMT metal facing where doors are required to have a face or both faces lined.

Smoke doors: Solid core not less than 35 mm thick.

Construction

Adhesives:

- Internal: To AS/NZS 2270.
- External: To AS/NZS 2271.

Door thickness:

- General: 35 mm.
- External doors and doors over 900 mm wide: 40 mm.

Cut-outs: If openings are required in flush doors (e.g. for louvres or glazing), do not make cut-outs closer than the width of the stiles at the edges of the doors.

Edge strips: Minimum thickness 10 mm. Increase overall thickness to greater than 15 mm to accommodate the full depth of the rebate in rebated doors. Apply to the external edges of door after the facings are bonded to the door framing/core and finish flush with outside surface of the facings.

Edge strip location: along top and bottom edge

Louvre grilles: Construct by inserting the louvre blades into a louvre frame, and fix the frame into the door.

Double doors:

Square edged doors: Bevel as necessary to prevent binding between the leaves.

Rebated meeting stiles: If not double acting doors, provide rebated meeting stiles or fix equivalent metal T stop to one leaf. Form rebates to suit standard rebated hardware.

Tolerance

Squareness: The difference between the lengths of diagonals of a door. Maximum 3 mm.

Twist: The difference between perpendicular measurements taken from diagonal corners. Maximum 3 mm.

Nominal size (mm):

- Height: ± 2

- Width: ± 2 , - 0.

2.3 DOORSETS

Duct access panels

General: Proprietary products comprising metal-faced doors side hung to steel door frames, including hardware and accessories such as hinges and lock and installation lugs.

Floor access panels

Frame: Weld from 50 x 50 x 6 mm angle, with two 40 mm coggled fixing lugs each side and shop prime.

Covers: 6.5 mm checker floorplate, on 40 x 40 x 6 mm angle welded frame with 32 x 6 mm diagonal stiffening flats. Cut, radius and grind off 100 x 25 mm lifting slots in each end of covers.

2.4 ANCILLARY MATERIALS

Trims

Timber: Solid timber at least 19 mm thick, mitred at corners.

Extruded gaskets and seals

General: As documented in the Door seal schedule.

Materials: Non-cellular (solid) elastopressive seals as follows:

- Flexible polyvinyl chloride (PVC): To BS 2571, 100% solids with high consistency, ultraviolet stabilised.
- Rubber products (neoprene, ethylene propylene diene monomer (EPDM) or silicone rubber): To BS 4255-1.

Flashings

General: Corrosion resistant, compatible with the other materials in the installation, and coated with a non-staining compound where necessary.

Standard: To AS/NZS 2904.

Joining materials

General: Compatible with each other and with the contact surfaces and non-staining to finished surfaces. Do not provide bituminous materials on absorbent surfaces.

Nylon brush seals

General: Dense nylon bristles locked into galvanized steel strips and fixed in a groove in the edge of the door or in purpose-made anodised aluminium holders fixed to the door with double sided PVC foam tape.

Pile weather strips

General: Polypropylene or equivalent pile and backing, low friction silicone treated, ultraviolet stabilised.

Standard: To AAMA 701/702.

Weather bars

General: Provide a weather bar under hinged external doors, locate under the centres of closed doors.

3 EXECUTION

3.1 FRAMES

General

Frames: Install the frames as follows:

- Plumb, level, straight and true.
- Fixed or anchored to the building structure.
- Isolated from any building loads, including loads caused by structural deflection or shortening.

Frame fixing

Brackets: Metallic-coated steel:

- Width: Minimum 25 mm.
- Thickness: Minimum 1.5 mm.

Depth of fixing for building into masonry:

- Brackets: Minimum 200 mm.
- Expansion anchors: Minimum 50 mm.
- Plugs: Minimum 50 mm.
- Rods: Minimum 60 mm.

Jamb fixing centres: Maximum 600 mm.

Joints

General: Make accurately fitted joints where fasteners, pins, screws, adhesives and pressure indentations are not visible on exposed surfaces.

Aluminium frames

Building into masonry: Screw galvanized steel brackets twice to jambs and build in.

Fixing to masonry openings: Build in seasoned timber plugs to masonry joints or use proprietary expansion anchors and screw twice through jambs at each fixing.

Fixing to stud frame openings: Screw once to studs at each fixing.

Finishing

Trim: Provide mouldings, architraves, reveal linings, and other internal trim using materials and finishes matching the door frames to make neat and clean junctions between the frame and the adjoining building surfaces.

Seals

General: Provide the fixings, rebates, grooves, and clearances required for installation and operation of the seals. Allow seals unwound from coils to settle before use.

Weatherproofing

Flashings and weatherings: Install flashings, weather bars, drips, storm moulds, caulking and pointing to prevent water from penetrating the building between the door frame and the building structure under the prevailing service conditions, including normal structural movement of the building.

3.2 DOORS

Priming

General: Prime timber door leaves on top and bottom edges before installation.

3.3 DOORSETS

Security screen doorsets

Standard: To AS 5040.

3.4 COMPLETION

Operation

General: Make sure moving parts operate freely and smoothly, without binding or sticking, at correct tensions or operating forces and that they are lubricated where appropriate.

Protection

Temporary coating: On or before the date for practical completion, or before joining up to other surfaces, remove all traces of temporary coatings used as a means of protection.

4 SELECTIONS

4.1 DOOR TYPES SCHEDULE

Door Frames

Property	Typical Solid Core Door (Internal)	Typical Solid Core Door (External)
Frame	Aluminium Shop frame 472 Series 100x 40 or similar. Ensure stops are installed within the frame to take the required seals	Aluminium Shop frame 100x 40 or similar. Ensure stops are installed within the frame to take the required seals
Finish	Powder Coated	Powder Coated
Fan Light	Louvre Panel Neptune by Lowline Group or Similar approved	Similar to internal where noted on the door schedule

Flush doors construction schedule

Property	Typical Solid Core Door (Internal)	Typical Solid Core Door (External)
Door type	Solid Core	Solid Core
Thickness (mm)	40mm	40mm
Core material	Solid H3.2 Pine Core	Solid H3.2 Pine Core
Facing material	H3.1 Plywood both sides	H3.1 Plywood internal face and 1.5mm BMT Folded metal on the external face wrapped around the edges, glued and pressed.
Face veneers: Timber species or group	Hoop Pine	Hoop Pine
Face veneers: Veneer quality	A Grade	A Grade
Face veneers: Matching arrangement	Match Along the length	Match Along the length
Edge strip thickness (mm)	Solid timber edging approximately 50mm	Solid timber edging approximately 50mm
Panel: Clear opening size (mm)	Refer to Door Schedule	Refer to Door Schedule
Finish	Paint Finish. Prime all edges prior to installation.	Paint Finish. Prime all edges prior to installation.
Floor clearance	10mm	10mm
Threshold		Raven RP77 or similar to suit floor finish and transition at door location
Weather seals (All Around)	Allow for RP7 seals to all doors.	Fit Raven RP7 or similar Rubber Seals or Closed Cell Foam Seals
Glazed Panels (If Shown)	6.38mm laminated clear glass for all office where indicated and	Similar as internal where noted

Property	Typical Solid Core Door (Internal)	Typical Solid Core Door (External)
	Opaque glass for Toilets	
Ventilation Grilles	Where noted on the door schedule allow for door grilles for air relief instead of undercuts. Allow to install Holsaak Clear Anodised Louvre complete with frame	Similar as internal where noted

0455 DOOR HARDWARE

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide door hardware, as documented.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.3 INTERPRETATION

Abbreviations

General: For the purposes of this worksection, the abbreviations given in AS 4145.1 Appendix D apply.

Definitions

General: For the purposes of this worksection, the general definitions given in AS 4145.1 Section 2 apply.

Lock function: For the purposes of this worksection, the general definitions given in AS 4145.1 Appendix E apply.

1.4 SUBMISSIONS

Door-by-door schedule

General: Submit a door-by-door hardware schedule.

Information sources: This worksection and the contract drawings.

Key control system

New works: Submit details of the proprietary key control security system proposed by the lock manufacturer for locks required to accept a group key (master, grandmaster).

Alterations and additions: Submit details to extend the existing key control security system for locks required to accept a group key.

Maintenance: manuals

Automatic door operators: Submit the installer's proposal for continuing maintenance after completion on an annual renewal basis.

Manual: Submit the manufacturer's published recommendations for use, care and maintenance of the hardware provided.

Records

Door hardware schedule: Submit an amended schedule, prepared by the door hardware supplier, showing changes to the contract door hardware schedule resulting from the following:

- Approval of a hardware sample.
- Acceptance of an equivalent to a specified proprietary item.
- A contract variation to a door hardware requirement.

Execution details

Re-use of recovered hardware: Submit a proposal describing the standard of cleaning, repair and testing of recovered items and the location where each is to be reused.

Samples

Generic items: Submit samples of hardware items offered as meeting the description of items not specified as proprietary items.

Technical data

Key codes: Submit the lock manufacturer's record of the key coding system showing each lock type, number and type of key supplied, key number for re-ordering, and name of supplier.

Keys: For locks keyed to differ and locks keyed alike, verify quantities against key records, and deliver to the contract administrator at practical completion.

Warranties

Requirement: Submit the following:

All door hardware: Submit a warranty (or interlocking warranties) from the supplier and installer for the system and its installation, for a period of at least twelve months from the date of practical completion.

Minimum period: 12 months from Practical completion

Form of warranty: Written and must be executable through a local Samoan based supplier.

2 PRODUCTS

2.1 GENERAL

Supply

Delivery: Deliver door hardware items, ready for installation, in individual complete sets for each door, as follows:

- Clearly labelled to show the intended location.
- In a separate dust and moisture proof package.
- Including the necessary templates, fixings and fixing instructions.

Hardware specified generically: Provide hardware of sufficient strength and quality to perform its function, appropriate to the intended conditions of use, suitable for use with associated hardware, and fabricated with fixed parts firmly joined.

Replacement items

Door hardware: Match items being replaced with existing unless documented otherwise. Upgrade hinges as necessary to conform to Hinges for timber doors table and Hinges for aluminium doors table.

2.2 LOCKS AND LATCHES

Standard

General: To AS 4145.2

Padlocks

Standard: To AS 4145.4

Lock and latch classification

Rating systems: To AS 4145.1 Section 3.

Performance requirements: To AS 4145.2 Section 3.

2.3 HINGES

Butt hinge materials

Timber doors in timber or steel frames:

- **Material:** Brushed Stainless steel
- **Product:** Refer to hardware schedule

Aluminium framed doors in aluminium frames:

- **Material:** Brushed Stainless steel
- **Product:** Refer to hardware schedule

Doors fitted with closers: Provide low friction ball bearing hinges.

Fire-resisting doors: To AS 1905.1.

Power transfer hinges: Do not load and install with other compatible hinges.

Lift-off doors: If toilet cubicles require lift-off doors, provide lift-off hinges and allow for door panel with sufficient clearance at the head to facilitate door removal.

Solid core doors

Number of hinges: Determine the number of hinges required based on the nominated door leaf size and weight only. For other door leaf sizes or for doors with applied finishes, use the weight of the door to determine the number of hinges required. For a door leaf over 80 kg, use pivot hinges.

Size of hinges: Determine the size of the hinge based on the door leaf thickness:

- 35 to 43 mm thick door: 100 x 75 mm butt hinges with a minimum thickness of 2.5 mm.
- 44 to 55 mm thick door: 100 x 100 mm butt hinges with a minimum thickness of 2.5 mm.
- > 56 mm thick door: Refer to the door by door hardware schedule.

Hinge pin: Supply fixed pins to hinges of doors opening out or designated as a security doors. For all other doors, provide loose pins.

Wide throw: If necessary, provide wide throw hinges to achieve the required door swings in the presence of obstacles such as ribs, deep reveals and architraves.

Hinges for timber doors table

Nominal door leaf size (H x W x T) (mm)	Door leaf weight	Number of hinges
2040 x 400 x 35	≤ 19	2
2040 x 600 x 35	≤ 29	2
2040 x 720 x 35	≤ 35	3
2040 x 820 x 35	≤ 39	3
2040 x 920 x 35	≤ 44	3
2040 x 1020 x 35	≤ 49	4
2040 x 720 x 40	≤ 37	3
2040 x 820 x 40	≤ 42	3
2040 x 920 x 40	≤ 48	3
2040 x 1020 x 40	≤ 52	4
2040 x 720 x 50	≤ 45	3
2040 x 820 x 50	≤ 50	3
2040 x 920 x 50	≤ 57	3
2040 x 1020 x 50	≤ 68	4
2400 x 720 x 40	≤ 50	4
2400 x 820 x 40	≤ 52	4
2400 x 920 x 40	≤ 55	4
2400 x 1020 x 40	≤ 60	4
2400 x 1220 x 50	≤ 72	5
2040 x 920 x 70	≤ 88	Pivot hinges

Aluminium doors

Application: Provide aluminium hinges for aluminium doors, or for doors of other materials in aluminium frames of a weight of 40 kg or less.

Hinges for aluminium doors table

Nominal hinge size (L x W x T) (mm)	Door leaf weight	Knuckles (minimum)	Screws/hinge leaf (minimum)
100 x 70 x 3	≤ 30	3	3
100 x 80 x 3.5	≤ 50	5	4
130 x 90 x 3.4	≤ 75	Interfold	3

Note: Length (L) is the dimension along the knuckles, not including hinge tips, if any, and width (W) is the dimension across both hinge leaves when opened flat.

2.4 DOOR HANGING SYSTEMS

General

Requirement: Provide sliding door tracks as documented in the Door hardware selection schedule.

2.5 ANCILLARIES

Bolts

General: Provide bolts including barrel bolts, flush bolts and tower bolts with keepers, including lock plates, staples, ferrules or floor sockets.

Mortar guards

General: For steel door frame installations, provide mortar guards designed to allow the full extension of the lock tongue or similar devices and the correct operation of the locking mechanism.

Rebated doors

General: For mortice locks or latches to rebated doors, provide purpose-made rebated pattern items.

Strike plates

General: Use strike plates provided with the locks or latches. Do not provide universal strike plates.

2.6 DOOR CONTROLLERS

Standard

General: To AS 4145.5.

Performance

Requirement: Provide door controllers, pivots, floor or overhead door closers, and automatic door operators, which are suitable for the door type, size, weight and swings required and the operating conditions, including wind and air conditioning pressure.

Closers

Hinged and pivot doors:

- Fire-resisting doors: Provide closers tested and certified for use as components of fire-resisting door assemblies.

Standard: To AS 1905.1.

2.7 ELECTRONIC CONTROL DEVICES

General

Requirement: Provide electric strikes, electric locks, drop bolts, or similar devices to suit door construction and hardware.

Electromagnetic hold-open devices: To AS 1905.1 and AS 1870.1.

Fail-safe: Connect door control devices in a fail-safe mode to permit egress in the event of power failure.

Fail-secure: Connect door control devices in a fail-secure mode to prevent egress in the event of power failure.

Authorized products: Provide equipment listed in the ActivFire Register of Fire Protection Equipment Register of Fire Protection Equipment.

Glass doors: Provide tumbler, drop bolts or magnetic holders.

Double leaf doors (solid frame): Provide an electric strike or lock on the fixed leaf, connected to the door frame by concealed flexible wiring.

Activation

Activation device: Provide keypads, card readers or other activation devices, and locate next to entry points.

External: Provide weatherproof (IP56) hoods or housings for external units.

Mounting height: 900 to 1100 mm from floor level and not less than 500 mm from internal corners.

2.8 KEYING

Temporary construction keys and cylinders

Requirement: Provide one of the following:

- Loan cylinder: Install for construction locks and replace at practical completion.
- Construction keyed master key cylinder: Keep up-to-date records of keys issued including recipient's name, company and contact details, date issued and date returned.

Delivery of keys

Great grandmaster, grandmaster and master keys: Arrange for the manufacturer or supplier to deliver direct to the principal.

Group keying

Keying system: Provide a group keying system as documented in the Key codes schedule.

Existing system: Obtain the details of existing group or master key systems to which a new system is required to be an extension.

Future extensions: Provide master and grandmaster group keying systems which are capable of accommodating future extensions.

Keying control security system: If cylinder or pin-tumbler locks accept a group key (e.g. master key, maison key) provide to those locks a proprietary keying control security system.

Stamping: Stamp keys and lock cylinders to show the key codes and/or door number as scheduled. Identification

Labeling: Supply each key with a purpose-made plastic or stamped metal label legibly marked to identify the key, attached to the key by a metal ring.

Key material

Lever locks: Malleable cast iron or mild steel.

Pin tumbler locks: Nickel alloy, not brass.

Number of keys table

Key code	Key type	Minimum number of keys
GGMK	Great grandmaster keys	2
GMK	Grandmaster keys	2
MK	Master keys	2 per code group
KD	Locks keyed to differ	2 per lock
KA	Locks keyed alike:	
	- 2 locks in code group	4
	- 3 to 10 locks in code group	8
	- 11 to 40 locks in code group	10
	- 41 and over locks in code group	1 per 4 locks or part thereof

3 EXECUTION

3.1 INSTALLATION

General

Handling: Before supply, verify on site, the correct handling of hardware items.

Operation: Make sure working parts are accurately fitted to smooth close bearings, without binding or sticking, free from rattle or excessive play, lubricated where appropriate.

Mounting height

Locks and latches: Centreline of the door knob or lever spindle above finished floor: between 900mm and 1100mm.

Locks

Cylinders: Fix vertically and with consistent key alignment.

Door stops

Fixing: Fix on the floor, skirting or wall, as appropriate, to prevent the door or door furniture striking the wall or other surface.

Fasteners

Materials: Provide materials compatible with the item being fixed, and of sufficient strength, size and quality to perform their function.

- Concealed fixings: Provide a corrosion resistant finish to concealed fixings.
- Exposed fixings: Match exposed fixings to the material being fixed.

Security: Locate exposed fixings to lock furniture on the inside faces of external doors and on the inside faces of internal doors to lockable rooms.

Support: Provide appropriate back support (for example lock stiles, blocking, wall noggings and backing plates) for hardware fixings.

- Hollow metal sections: Provide backing plates drilled and tapped for screw fixing, or provide rivet nuts with machine thread screws. Do not use self-tapping screws or blind rivets.

Floor springs

General: Form a recess in the floor slab for the floor spring box and grout the box in place so that the cover plate is flush with the finished floor.

Hinges

Metal frames: Fix hinges using metal thread screws.

Timber doorsets: Install butt hinges in housings equal in depth to the thickness of the hinge leaf (except for hinges designed for mounting without housing), and fix with countersunk screws.

3.2 COMPLETION

Adjustment

General: Leave the hardware properly adjusted with working parts in working order, and clean, undamaged, properly adjusted, and lubricated where appropriate.

Automatic door operators: Maintain and adjust the system throughout the defects liability period.

Keys

Contractor's keys: Immediately before practical completion, replace or reset cylinders to which the contractor has had key access during construction to exclude the contractor's keys.

Product warranties

Warranty: Cover materials and workmanship in the form of interlocking warranties from the manufacturer or distributor and the installer.

4 SELECTIONS

Contractor is to provide door hardware schedule for review. The schedule shall clearly state hardware brands. Contractor is to check and coordinate keying with the client prior to ordering.

0454B OVERHEAD DOORS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide overhead doors, as documented.

1.2 CROSS REFERENCES

1.3 GENERAL

Requirement: Conform to the following:

- 0171 General requirements.

1.4 STANDARDS

General

Garage doors and other large access doors: To AS/NZS 4505.

1.5 SUBMISSIONS

Operation and maintenance manual

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Framing or structure to receive tracks and motor.
- Tracks and guides installed before doors or shutters are hung.

2 PRODUCTS

2.1 ROLLING CURTAIN AND ROLLING SHUTTER DOORS

Types

Rolling curtain:

- Curtain material: Continuous roll formed profiled steel.
 - Product: Metalbit NZ Steel roller Shutter Door – with roll formed interlocking slats or equally an approved product.
 - Base metal thickness (BMT): 0.8mm BMT
 - Finish: Powder coated
 - Allow for security panel across lintel

Rolling shutter:

- Curtain material: G250 grade steel
- Slat thickness: 100mm pitch

Bottom rail

Requirement: Provide a stiffening member as follows:

- Interlocking with the bottom edge or lowest part of the curtain.
- Extending between the inner faces of the vertical guides.
- Formed or adapted as required to follow the contour of a sloping floor or threshold.
- Adapted to house a locking device, if required.
- Extruded aluminium bottom bar with a Neoprene weather strip fitted to the lower edge of the curtain.

Wind locks

General: Provide 95mm deep wind lock end clips and guides to retain the curtain in wide openings or under extreme wind conditions.

Drum

Maximum drum deflection: 1/360th of the span.

Springs: Helical torsion springs housed in the drum and arranged to counterbalance the curtain weight without exceeding the safe working stress of the spring material.

Wickets

General: Provide doors with metal frame and facings to match the curtain, and manufacturer's standard lockset and furniture.

Operation: method

General: Method of opening and closing the door:

- Manual:

Chain: By pulling on a chain passing over a sprocket on the drum, with reduction gears where necessary.

2.2 OPERATION

Manual operation

General: Install so that the force required to operate the door manually does not exceed 220 N.

3 EXECUTION

3.1 INSTALLATION

General

Requirement: Install overhead doors in conformance with the manufacturer's recommendations and as documented.

Preparation

Substrate: Before start of installation, check the alignment of substrates or framing and adjust if required.

Frames

Requirement: Install frames as follows:

- Plumb, level, straight, true, and within tolerances and clearances recommended by the manufacturer.
- Fixed or anchored to the building structure using mechanical fixings suitable for the substrate and the imposed loads.
- Isolated from any building loads, including loads caused by structural deflection or shortening.

3.2 COMPLETION

Operation

General: Make sure moving parts operate freely and smoothly, without binding or sticking, at correct tensions or operating forces and that they are lubricated where appropriate.

Safety: Make sure all safety features are operating.

Remote control devices: Make sure devices are programmed and operating.

Protection

Temporary coating: On or before the date for practical completion of the works, or before joining up to other surfaces, remove all traces of temporary coatings used for protection.

Warranties

General: Submit the manufacturer's published product warranties.

0456 LOUVRE WINDOWS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide louvre windows, as documented.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements

Manufacturer's documents

Manufacturer's and supplier's documents related to this work section: Breezeway Louvres and Frame system or equally an approved product.

1.3 STANDARDS

Glazing

Glass type and thickness: To AS 1288, where no glass type or thickness is given.

Materials and installation: To AS 1288.

Quality requirements for cut-to-size and processed glass: To AS/NZS 4687.

Terminology for work on glass: To AS/NZS 4688.

1.4 INTERPRETATION

Abbreviations

General: For the purposes of this work section the following abbreviations apply:

- AWA: Australian Window Association.
- WERS: Window Energy Rating Scheme.

Definitions

General: For the purposes of this work section, the following definitions apply:

- Louvres - horizontal: Louvres that span between frames stiles, mullions or vertical supports.
- Total system SHGC: Solar heat gain coefficient as defined by BCA and tested in conformance with NFRC 200.
- Total system U-value: Thermal transmittance as defined by BCA and tested in conformance with NFRC 100.

1.5 SUBMISSIONS

Certification

Conformance: Submit evidence that window assemblies meet documented design wind pressures and water penetration resistance.

Operation and maintenance manual

General: Submit the louvre window manufacturer's published instructions for operation, care and maintenance.

Samples

General: Submit samples of louvre window system components as follows:

- Accessory and hardware items not selected as proprietary items including louvre holders and operators, locks, latches, handles, catches, anchor brackets and attachments, masonry anchors and weather seals (pile or extruded).
- Colour samples of prefinished production material (e.g. anodised or organic coated extrusions and sheet) showing the limits of the range of variation in the selected colour.
- Frame member profiles and louvre materials.
- Frame member joining techniques.

- Label each sample, giving the Series code reference and date of manufacture.

Glazing: Submit samples of glazing materials, each at least 200 x 200 mm, showing specified visual properties and the range of variation, if any, for each of the following types of glass:

- Tinted or coloured glass.
- Patterned or obscured glass or glazing plastics.

Shop drawings

General: Submit shop drawings to a scale that best describes the detail, showing the following:

- Frame member profiles.
- Hardware, fittings and accessories including fixing details.
- Junctions and trim to adjoining surfaces.
- Layout (sectional plan and elevation) of the window assembly.
- Lubrication requirements.
- Methods of assembly.
- Methods of installation including fixing, joint sealing and flashing.
- Provision for vertical and horizontal expansion.

Certification: Submit an engineer's certificate verifying conformance to AS 2047.

Tests

Type tests: Submit reports verifying conformance to AS 2047 and the performance requirements as documented in the Louvre window performance schedule.

Warranties

Requirement: Submit the following:

- **Manufacturers minimum period**

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Openings prepared to receive windows (if windows are to be installed in prepared openings).
- Fabricated window assemblies at the factory ready for delivery to the site.
- Fabricated window assemblies delivered to the site, before installation.
- Commencement of window installation.

2 PRODUCTS

2.1 GENERAL

Standards

Flashings: To AS/NZS 2904.

Aluminium extrusions: To AS/NZS 1866.

Marking

Identification: Marked to show the following:

- **Manufacturer's identification.**
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.
- Material composition and characteristics such as volatility, flash point, light fastness, colour and pattern.

2.2 GLASS

Glass and glazing materials

Glass: Free from defects which detract from appearance or interfere with performance under normal conditions of use.

Glazing plastics: Free from surface abrasions, and warranted by the manufacturer for 10 years against yellowing or other colour change, loss of strength and impact resistance, and general deterioration.

2.3 GLAZING MATERIALS

General

Glazing materials (including putty, glazing compounds, sealants, gaskets, glazing tapes, spacing strips, spacing tapes, spacers, setting blocks and compression wedges): Appropriate for the conditions of application and the required performance.

Joining materials

Compatibility: Provide recommended joining and pointing materials which are compatible with each other and with the contact surfaces and non-staining to finished surfaces. Do not provide bituminous materials on absorbent surfaces.

Pile weather strips

Standard: To AAMA 701/702.

Location: Along edge of the window louvre unit.

Materials: Polypropylene or equivalent pile and backing, low friction silicone treated, ultra violet stabilised.

Finned type: A pile weather seal with a central polypropylene fin bonded into the centre of the backing rod and raised above the pile level.

Extruded gaskets and seals

Type: Non-cellular (solid) elastopressive seals.

Location or function: Head and Sill seals

Material:

- Rubber products (neoprene, ethylene propylene diene monomer (EPDM) or silicone rubber): To BS 4265-1.
- Flexible polyvinyl chloride (PVC): To BS 2671, E type compounds, colour fastness grade B.

Priming

Compatibility: Apply the recommended primer to the surfaces in contact with sealant materials.

2.4 GLASS IDENTIFICATION

Safety glazing materials

Identification: Identify each piece or panel, to AS 1288.

2.5 LOUVRE WINDOW ASSEMBLIES

General

Description: Provide louvre blades mounted in a metal surround frame or subframe and able to withstand the permissible stress-design wind pressure for that location without failure or permanent distortion of members, and without louvre blade flutter.

Adjustable louvres

Description: Provide louvre blades clipped into pivoting blade holders to stiles or coupling mullions, linked together in banks, each bank operated by an operating handle incorporating a latching device, or by a locking bar.

2.6 STAINLESS STEEL WOVEN INSECT/ SECURITY MESH WINDOW SCREENS

General

General: Provide proprietary metal security grille screens, or operable screen and frame, fixed to the building structure with tamper resistant fastenings.

Installation: To external face of the Windows typical.

Product: Crime-Safe screen within a proprietary frame

2.7 ALUMINIUM LOUVRE FRAME FINISHES

Anodised

Standard: To AS 1231.

Thickness: 20 microns.

Colour: Clear

3 EXECUTION

3.1 PRE-INSTALLATION

General

Timber reveals: Prime all surfaces of timber reveals which are to be painted before fixing to aluminium frames.

3.2 INSTALLATION

Glazing

General: Install the glass as follows:

- Permanently fix in place each piece of glass to withstand the normal loadings and ambient conditions at its location without distortion or damage to glass and glazing materials.
- No transfer of building movements to the glass.
- Watertight and airtight for external glazing.

Temporary marking: Use a method which does not damage the glass. Remove marking on completion.

Toughened glass: Do not cut, work, or permanently mark after toughening. Use installation methods which prevent the glass making direct contact with metals or other non-resilient materials.

Heat absorbing glass: Provide wheel cut edges without damage or blemishes and with minimum feather in locations exposed to direct sunlight.

Louvre windows

General: Install louvre windows frames, as follows:

- Plumb, level, straight and true within acceptable building tolerances.
- Fixed or anchored to the building structure in conformance with the wind action requirements.
- Isolated from any building loads, including loads caused by structural deflection or shortening.
- Allowing for thermal movement.

Flashing and weatherings

General: Install flashings, weather bars, storm moulds, joint sealant and pointing to prevent the ingress of water between the window frame and the building structure under the prevailing service conditions, including normal structural movement of the building.

Fixing

General: Do not penetrate metal flashings with fixings.

Fastener spacing (nominal): 600 mm and maximum 150 mm from reveal ends.

Fasteners: Conceal fasteners. Use size and type to suit window unit size and wind loading conditions.

Packing: Pack behind fixing points with durable full width packing.

Joints

Requirement: Make accurately fitted tight joints so that fasteners and fixing devices such as pins, screws, adhesives and pressure indentations are not visible on exposed surfaces.

Sealants: If priming is recommended, prime surfaces in contact with jointing materials.

Operation

General: Make sure moving parts operate freely and smoothly, without binding or sticking, at correct tensions or operating forces and are lubricated.

Protection

Removal: Remove temporary protection measures from the following:

- Contact mating surfaces before joining up.

- Exposed surfaces.

Repair of finish

Polyester or fluoropolymer coatings: Contact supplier for approval to apply touch up products, otherwise replace damaged material.

Trim

General: Provide mouldings, architraves, reveal linings, and other internal trims using materials and finishes matching the window frames. Make neat and clean junctions between frames and the adjoining building surfaces.

3.3 COMPLETION

Trade clean

Method: Clean with soft clean cloths and clean water, finishing with a clean squeegee. Do not use abrasive or alkaline materials.

Extent: All frames and glass surfaces inside and out.

Warranties

Louvre windows: Provide a warranty as follows:

- Form: Against failure of materials and operation under normal environment and use conditions.
- Period: As offered by the manufacturer.
- Powder coating: As offered by the manufacturer for the selected finish.
- Hardware: As offered by the manufacturer.

4 SELECTIONS

4.1 PERFORMANCE

External Door and Window Minimum Performance (Design Loads)

Property	Crim Safe Screen and Frame and Window Frames
Ultimate limit state (ULS) wind pressure (Pa)	3.65 kPa
Serviceability limit state (SLS) wind pressure (Pa)	2.40 kPa
Water penetration resistance (Pa)	300Pa
Impact Loads from Wind Borne Debris (Clause 2.5.8 AS 1170.2 – 2011)	W 80m/s

4.2 LOUVRE WINDOWS

Louvre window schedule

Property	A – to all Windows
Product name	G James Glass and Aluminium and Brewey Altair Louvre system or equally an approved product.
Proprietary suite	050 Series with breezeway Altair 153 blade Strong hold system fitted within.
Frame material	Aluminium
Frame finish	Powder Coated, Silver Pearl
Louvre blade material	Annealed Glass
Louvre blade finish	Clear finish – Grey tint
Louvre blade height and width (mm)	652mm wide blade x 8mm thick with 650 max span
Operator type	Manual with lockable handles with Keyed lock
Operator and clip colour	Altair Standard louvre handle and locking bar

4.3 SCREENS

Screen schedule

Property	Crimesafe external Screen and Frame
Product name	Crime Safe screen and Cyclone frame or equally an approved product.
Generic description	Cyclone Debris Screen for region C and D . This includes the Crimesafe 100mm Cyclone Build Out Frame fixed to block wall complete with Crimesafe 1.2M 304 Stainless steel powder coated screen
Frame material	Aluminium
Frame finish	Powder Coated, Silver Pearl
Mesh type	1.2mm 304 Stainless steel screw clamped into a commercial frame.
Design Wind Speed (Impact Speed)	44m/s

4.4 GLAZING

Glass schedule

Property	A = to all Louvre Windows
Glass type	Vridian Clear Float or equally an approved product.
Glass thickness (mm)	6mm
Body tint colour	Grey tint
Edge processing	Square beveled edges
Number of edges processed	All leading edges

0471 THERMAL INSULATION AND PLIABLE MEMBRANES

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide thermal insulation and pliable membrane systems, as documented.

Performance

Requirements:

- Complete for their function.
- Conforming to the detail and location drawings.
- Firmly fixed in position.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.3 INTERPRETATION

Definitions

General: For the purposes of this worksection the following definitions apply:

- Fbs-1 (fibre-bio-soluble) mineral wool: Insulation composed of bio-soluble glass or rock fibres.
- Fibre bats: Flexible insulation supplied as factory cut pieces and composed of mineral wool (glass and rock fibre) or polyester fibre.
- Fire hazard properties: To BCAA2.4.
- Pliable building membrane: To AS/NZS 4200.1 and equivalent to sarking-type materials as defined in the BCA.
- Thermal insulation terminology: To AS/NZS 4859.1.
- Vapour permeable (breathable) membrane: A flexible membrane material, normally used for secondary waterproofing that allows for the transmission of water vapour.

1.4 SUBMISSIONS

Certification

Requirement: Submit evidence of conformance to PRODUCTS, INSULATION AND PLIABLE MEMBRANE, Insulation.

Certification provider: An organisation accredited by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ).

Fire hazard properties

General: Submit evidence of conformance to INSULATION AND PLIABLE MEMBRANE MATERIALS, Fire hazard properties.

Products and materials

Thermal insulation properties: Submit evidence of conformance to AS/NZS 4859.1.

Warranties

Manufacturer's published product warranties: Submit on completion.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the pliable membrane and insulation before they are covered up or concealed.

2 PRODUCTS

2.1 GENERAL

Marking

Identification: Marked to show the following:

- Manufacturer's identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.
- Material composition and characteristics such as volatility, flash point, light fastness, colour and pattern.

2.2 INSULATION AND PLIABLE MEMBRANE MATERIALS

Fire hazard properties

Insulation fire hazard indices: Conform to the following for all materials, tested to AS/NZS 1530.3:

- Spread-of-Flame Index: ≤ 9 .
- Smoke Developed Index: ≤ 8 if Spread-of-Flame Index > 5 .
- Materials with reflective facing: Test to AS/NZS 1530.3 clause 4.12(b) and the recommendations of Appendix A6.

Pliable membranes Flammability Index tested to AS 1530.2: ≤ 5 .

Insulation

Mineral wool blankets and cut pieces: To AS/NZS 4859.1 Section 6.

Wool: To AS/NZS 4859.1 Section 6.

Reflective thermal insulation: To AS/NZS 4859.1 Section 9.

Pliable membranes

Standard: To AS/NZS 4200.1.

Vapour barrier:

- Vapour barrier classification: High.

Sarking membrane (other than walls and gables)

- Water barrier classification: High.

Fasteners and supports

General: Metallic-coated steel.

Mesh support to roof insulation

Metallic-coated steel wire netting: To AS 2423 Section 4.

- Size: 45 mm mesh x 1 mm diameter.

Welded safety mesh: To AS/NZS 4389.

3 EXECUTION

3.1 GENERAL

Bulk insulation

Installation: To AS 3999 and BCA J1.2.

General: Firmly built together fibre blankets or batts, with no gaps except as follows:

- Access openings and vents: Do not obstruct.
- Light fittings: To AS/NZS 3000 clause 4.5.
- Electrical cables: To AS 3999 clause 2.6.

Glass Wool and Rock Wool insulation: Conform to the ICANZ industry code of practice for the safe use of glass wool and rock wool insulation.

Marking: Deliver mineral wool products to site in packaging labelled FRS-1 BIO-SOLUBLE INSULATION.

3.2 ROOF INSULATION

General

Location: The whole of the roof area including skylight shaft walls, except the following:

- Eaves, overhangs, skylights, vents and openings.
- Roofs to outbuildings, garages, and semi-enclosed spaces such as verandahs, porches and carports.

Mesh support to roof insulation

Locations: Provide support to the following:

- Sarking, vapour barrier or reflective thermal insulation membranes laid over roof framing members which are spaced at more than 900 mm centres.
- Blanket type thermal insulation laid over roof framing members as sound insulation to metal roofing.

Wire safety mesh: Lay over the roof framing allowing only natural mesh sag between members to suit the application. Staple to timber frame, wire to steel frame.

Installing welded safety mesh: To AS/NZS 4389.

Metal roofs – bulk insulation

Product: Fletcher PermaStop Tropic R1.4 60mm thick double foil blanket insulation

Installation:

- Batts: Fit tightly between framing members.
- Blanket for sound insulation: Install over the roof framing, reflective thermal insulation (if any), and mesh support, so that the blanket is in continuous contact with the underside of the metal roofing sheets.
- Combined blanket and reflective insulation: Lay facing reflective insulation face downwards over safety mesh.

Ceiling insulation – bulk insulation

Product type: Fletcher Pink Batts R1.5

- Framed ceilings: Fibre batts.
- Suspended ceiling: Fibre blanket.

Application: Over ceiling lining.

Installation:

- Batts: Fit tightly between framing members.
- Blankets: Butt joint and lay over ceiling panels or lining.

3.3 COMPLETION

Warranties

Insulation and pliable membranes: Submit the manufacturer's published product warranties.

4 SELECTIONS

4.1 INSULATION

Roof insulation schedule

Property	A	B
Application	Laid between and over purlins	Laid between and over ceiling battens in Air condition areas only
Type/Product	Fletcher PermaStop Tropic double foil blanket	Fletcher Pink Batts insulation

Property	A	B
	Insulation or equally an approved product.	
Location	Between roof sheeting and roof mesh	To extend ceiling above the lining. Protect bolts from light fixtures
R-Value	1.4	1.5
Fire Retardant	Yes	Yes
Thickness (mm)	60mm	65mm

0511B LINING

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide internal lining systems, as documented.

Performance

Requirement: Provide lining system with a surface that is:

- Resistant to impacts expected in use.
- Resistant to moisture encountered under expected environmental conditions.
- Free of irregularities.
- A suitable substrate for the nominated final finish.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements
- 0182 Fire-stopping

1.3 INTERPRETATION

Definitions

General: For the purposes of this work section the definitions given in AS/NZS 4491 and the following apply:

- Decorative overlaid wood panels: Particleboard or fibreboard with a bonded decorative finishing surface such as thermosetting resin (low pressure melamine), PVC film, paper foils or woodveneer.
- Dry processed fibreboard (MDF): A panel manufactured by bonding lignocellulosic fibres (derived from wood or other materials) with a synthetic resin adhesive and curing under heat and/or pressure.
- The panels are manufactured with a forming moisture content of less than 20%.
- Fibre cement sheet linings: Treated cellulose fibre in a matrix of cement and sand autoclaved sheet, sealed on one side.
Sheets consisting of a decorative face and layers of fibrous sheet material (e.g. paper) impregnated with thermosetting resins and bonded together under heat and pressure of at least 5 MPa.

1.4 TOLERANCES

Permitted deviations

Gypsum lining: To AS/NZS 2589 clause 4.2.2.

Other lining: 4 mm from a 1.8 m straightedge.

Substrates

Requirement: Plumb, level, in true alignment and to the lining manufacturer's recommendations.

Timber, steel framing and battered masonry: To AS/NZS 2589 clause 4.2.

1.5 SUBMISSIONS

Fire hazard properties

Requirement: Submit evidence of conformance to PRODUCTS, GENERAL, Fire hazard properties.

Warranties

Requirement: Submit the following:

- As per manufacturers specification

Lining materials: Submit the manufacturer's published product warranties.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Substrate or framing before installation of linings.
- Finished surface of installation before applying:
 - Sealer.
 - Finish coatings or decorative papers.

2 PRODUCTS

2.1 GENERAL

Fire hazard properties

Group number: To BCA Spec C1.10 and AS 5637.1.

Storage and handling

Requirement: Dry and undamaged lining stacked in pallets horizontally on a smooth, level surface. Prevent distortion or moisture ingress.

Timber or fibreboard panels: Store off the ground in a well-ventilated area.

Handling: Do not drag sheets across each other or across other materials. Protect edges, corners and surface from damage.

Acclimatization

Timber panels: Store on-site in final interior conditions for 2 to 3 weeks before installing. Do not install until the air conditioning system of the installation area is operating.

Marking

Identification: Marked to show the following:

- Manufacturer's identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.
- Material composition and characteristics such as volatility, flash point, light fastness, colour and pattern.

Certification

General: Label panels under the authority of a recognised certification program applicable to the product. Locate the label on faces or edges which will be concealed in the works.

2.2 ADHESIVES, SEALANTS AND FASTENERS

Adhesives

For wallboards: Gunnable synthetic rubber/resin based mastic contact adhesive formulated for bonding flooring and wallboards to a variety of substrates.

Sealants

Acoustic sealant: Non-hardening sealant compatible with the materials to be sealed.

Fasteners

Steel nails: Hot-dip galvanized.

3 EXECUTION

3.1 CONSTRUCTION GENERALLY

Conditions

Commencement: Do not commence lining work until the building or installation area is enclosed and weatherlight, and all wet trades have been completed.

Substrates or framing

General: Before fixing linings, check and adjust the alignment of substrates or framing, if necessary.

Battens

General: Fix at each crossing with structural framing members, to solid walls or ceiling support. Provide wall plugs in solid substrates.

Ceiling linings

General: Do not install until the timber roof structure is fully loaded for at least 14 days.

Accessories and trim

General: Provide accessories and trim as necessary to complete the installation.

Adhesives

General: Provide adhesive types appropriate for the purpose, and apply them so they transmit the loads imposed without causing discolouration of the finished surfaces.

3.2 PLASTERBOARD LINING

Installation

Gypsum plasterboard and fibre reinforced gypsum lining: To AS/NZS 2589.

Level of finish and jointing: To AS/NZS 2589 clause 3.1.

Supports

General: Install timber battens or proprietary cold-formed galvanized steel furring channels as follows:

- Where framing member spacing exceed the recommended spacing.
- Where direct fixing of plasterboard is not possible, due to the arrangement or alignment of the framing or substrate.
- Where the lining is the substrate for tiled finishes.
- Where required for penetrations for services, including mechanical grilles and lighting fixtures.
- If required to support fixtures.

Multiple sheet layers

Application: Fire-resistance rated and acoustic rated walls.

Joints: Fill and flush up all joints and fasteners in each layer and caulk up perimeters and penetrations before installing subsequent layers. Stagger all sheet joints by minimum 200 mm.

Joints

Flush joints: Provide recessed edge sheets and finish flush using perforated paper reinforcing tape.

Butt joints: Make joints over framing members or provide back blocking.

External corner joints: Make joints over metallic-coated steel corner beads.

Dry joints: Provide square edged sheet and finish with a PVC-U joining section.

Control joints: Provide purpose-made metallic-coated control joint beads at not more than 12 m centres in walls and ceilings and to coincide with structural control joints.

Wet areas: Install additional supports, flashings, trim and sealants as required.

Joints in tiled areas: Do not apply a topping coat after bedding perforated paper tape in bedding compound.

3.3 FIBRE CEMENT LINING

Supports

General: Install timber battens or proprietary cold-formed galvanized steel furring channels as follows:

- Where framing member spacing exceed the recommended spacing.
- Where direct fixing of fibre cement is not possible, due to the arrangement or alignment of the framing or substrate.
- Where the lining is the substrate for tiled finishes.
- Where required for penetrations for services, including mechanical grilles and lighting fixtures.
- If required to support fixtures.

Installation

Joints and layout: Run sheets across the framing members. In flush jointed applications, stagger and joints in a brick pattern and locate them on framing members, away from the corners of large openings. Provide supports at edges and joints.

Fixing

Timber framed construction: Nail only or combine with adhesive.

Steel framed construction: Screw only or combine with adhesive.

Wall framing: Conform to the following:

- Do not fix to top and bottom plates or noggings.
- In tiled areas: Provide an extra row of noggings immediately above wall to floor flashings. Fix sheet at 150 mm centres to each stud and around the perimeter of the sheet.

Masonry wall construction: Conform to the following:

- Direct fixing: Adhesive fix to the masonry except where lining forms a substrate for tiled finish.
- Furring channels: Fix using screw and/or adhesive.

Ceilings: Fix using screw and/or adhesive to ceiling furring members. Do not fix sheets directly to the bottom chords of trusses.

- Ceiling battens: Fix at 600 mm maximum centres.

Wet areas: Do not use adhesive fixing alone.

Multiple sheet layers

Application: Fire-resistance rated and acoustic rated walls.

Joints: Fill and flush up all joints and fasteners in each layer and caulk up perimeters and penetrations before installing subsequent layers. Stagger all sheet joints by minimum 200 mm.

Joints

Joint width:

- Butt joints: 1 to 2 mm.
- Exposed joints: 10 mm maximum.

Joint backing for exposed joints: Black self-adhesive polyurethane tape.

Flush joints: Provide recessed edge sheets and finish flush using perforated paper reinforcing tape.

External corner joints: Make joints over metallic-coated steel corner beads.

Dry joints: Provide square edged sheet and finish with a PVC-U joining section.

Control joints: Provide control joints to coincide with structural control joints and as follows:

- Walls: 47.2 m centres.
- Ceilings: To divide into bays not larger than 10.6 x 7.2 m.
- Soffit linings: To divide into bays not larger than 4.2 x 4.2 m or 5.6 x 3.6 m.
- Control joint beads: Purpose-made metallic-coated.
- Support: Provide framing parallel to the joint on each side. Do not fix the lining to abutting building surfaces.

Wet areas: Provide additional supports, flashings, trim and sealants as required.

Joints in tiled areas: Bed perforated paper tape in bedding compound. Do not apply a topping coat.

- Control joints: Not more than 4.2 m centres and space to suit joints required in tiling.
- Internal corners: Reinforce with metallic-coated steel angles. In corners subject to continuous moisture, flash over the angle and under the sheeting with continuous bitumen coated aluminium flashing.

3.4 TRIM AND ACCESSORIES

General

Requirement: Provide trim such as beads, mouldings and stops to make neat junctions between lining components, finishes and adjacent surfaces.

Proprietary items: Provide complete with installation accessories.

Timber and MDF trim: Fix using full length so that trim is secure and without movement. Where nail or screw fixings are used, make sure fastener finishes sufficiently below face of trim so that stopping piece finishes flush with the face.

3.5 COMPLETION

General

Damaged or marked lining and components: Replace.

Exposed surfaces: Touch up shop applied finishes and restore damaged or marked areas.

Timber panels: If appearance is not uniform, replace panels.

Cleaning: Clean completed surfaces to remove irregularities and leave panels smooth and clean, to the manufacturer's recommendations. If required, sand with fine paper to remove irregularities and refinish panel surface.

- Debris and unused material: Remove from site.

Warranties

Requirement: At practical completion, submit warranties against defective materials and installation.

0525B CUBICLE SYSTEMS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide cubicles, as documented.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.3 TOLERANCES

General

Deviation (from true grid lines and planes): 1:1000 to a maximum of 3 mm.

Misalignment (of adjoining surfaces at panel junctions): 1 mm.

Panel thickness: ± 0.5 mm.

Length and width: 0.1% of the dimension or 0.5 mm, whichever is the greater.

Flatness, twist, winding and bow: 1 mm deviation from a 2.4 m straightedge placed in any position.

Maximum deviation of edges from the intended true line: ± 1 mm.

1.4 SUBMISSIONS

Samples

General: Submit samples as follows:

- Each selected panel and door finish, at least 300 x 300 mm, with associated selected edge strips and trims.
- All hardware and metal components in the selected

Finish/Warranties

Cubicle system assemblies: Submit the **manufacturer's** published product warranties.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Set-out before installation.
- Completion of installation.

2 PRODUCTS

2.1 GENERAL

Marking

Identification: Marked to show the following:

- **Manufacturer's** identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.
- Material composition and characteristics such as volatility, flash point, light fastness, colour and pattern.

2.2 PRODUCT SYSTEMS

High pressure decorative laminate (HPDL) and panels and doors

Material: Compact high pressure decorative laminate panels with an integral surface finish and edges sealed by the manufacturer.

Edge: Factory prefinished square cut, ground smooth and arised, and oiled by the manufacturer.

2.3 ACCESSORIES

Suspension beam

General: For suspended systems, provide a suspension beam consisting of a galvanized mild steel channel, located immediately above the ceiling framing along the line of the partition fronts. Build the ends into masonry structure or provide end fixings to the structure, as necessary, to transfer the load. Drill the bottom flange of the channel for the partition fixing bolts.

Hardware

Fixing hardware: Bolts, dowels, brackets, standards, cappings and stabilizing bars supplied to complete the cubicle assembly.

Door furniture: As documented in the Cubicle schedule.

3 EXECUTION

3.1 PANELS

Acclimatization

General: Condition wood-based product components in the anticipated environment for two weeks before assembly.

Manufactured cubicle system installation

Assembly: Attach divisions and ribs to walls and fronts with purpose-made proprietary fixings. Cut ribs and divisions that abut walls, as required, so that assembly is plumb. Seal edges as recommended by the manufacturer.

Floor mounted/overhead braced type: Fix fronts to the floor with proprietary fittings and at the top to a metal channel headrail, supplied as part of the system. Run headrail across the fronts and fix to the walls at each end. Form the channel into a box section over doorways by snapping in a mating channel insert.

Heads of openings: Fix stabilising head channels by screwing to the top of the partitions. Provide an infill strip to the channel across the opening.

Ceiling hung type: Hang the fronts from a suspension beam with attachments incorporating a means of height adjustment, supplied as part of the system.

Freestanding type: Fix fronts to the floor with proprietary fittings.

4 SELECTIONS

4.1 SCHEDULES

Cubicle schedule

Property	Public Toilets and DMO Toilets
Manufacturer	Laminex Partitioning System or equally an approved product.
Product name	Laminex - FOAB
Cubicle function	Toilet Partition
Type	Foot Assembly with Overhead Brace and Privacy strip
Front base fixing	Foot Assembly - Concealed fixing anodised aluminium adjustable legs
Material and thickness: Division (mm)	Laminex Multipurpose Compact Laminate 13mm (with or without privacy strips)
Material and thickness: Front and rib (mm)	Laminex Multipurpose Compact Laminate 13mm (with or without privacy strips). Pre-drill holes to suit hardware.

Property	Public Toilets and Office Toilets
Panel Finish: Type	Protect PLUS with Polished edges.
Foot & Framing Finish	Foot: Clear Anodised foot with Rubber base. Channels and Brackets: Clear Anodised Overhead brace: Clear Anodised
Material	Aluminium
Hardware Finish: Type	Aluminium
Finish: Colour	Clear Anodise
Indicator bolts	Indicator bolt and turn bolt
Hinges	Gravity Hinge
Coat hook/door stop	Buffer and Rubber tipped coat hook
Not standard to the cubicle product	Note widths and depths may not be standard.

0551B JOINERY

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide joinery, as documented but not limited to the listed items below. The contract shall supply and install the following items as listed and itemise each unit within its tender.

- MICA Office Reception desk c/w Drawers
- MICA Office Reception Counter
- Public Bench Seat Furniture
- MICA Office Built in desks and c/w Drawers
- Courtroom Furniture
- Strong room shelving
- Kitchen Bench, shelving and ALL built in appliances including Fridge/Freezer
- Kitchensettes

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.3 STANDARDS

General

Tactile indicators: To AS/NZS 1426.4.1.

1.4 TOLERANCES

General

Requirement: Fabricate and install joinery items to substrates undamaged, plumb, level, straight and free of distortion.

Tolerances table

Property	Tolerance
Plumb and level	± 800
Offsets in flush adjoining surfaces	0.5 mm
Offsets in revealed adjoining surfaces	2 mm
Alignment of adjoining doors	0.5 mm
Difference in scribe thickness for joinery items centred between walls	2 mm
Doors centred in openings	0
Joints in finished surfaces	0

1.5 SUBMISSIONS

Operation and maintenance manuals

General: Submit **manufacturer's** published recommendations for service use.

Products and materials

Manufacturer's data: Submit **manufacturer's** data.

Proprietary items: Submit the manufacturer's standard drawings and details showing:

- Methods of construction.
- Assembly and fixing, with dimensions and tolerances. Shop drawings.

General: Submit shop drawings to a scale that best describes the detail, showing the following:

- Overall dimensions.
- Materials, thicknesses and finishes of elements including doors, divisions, shelves and benches.
- Type of construction including mitre joints and junctions of members.
- Hardware type and location.
- Temporary bracing, if required.
- Procedures for shop and site assembly and fixing.
- Locations of benchtop joints.
- Locations of sanitary fixtures, stoves, ovens, sinks, and other items to be installed in the units.
- Relationship of fixture to adjacent building elements.
- Details of fabrication involving other trades or components.
- Proposals for the break-up of large items as required for delivery to the site.
- Proposed method of joining the modules of large items.

Timing: Before fabrication.

Subcontractors

General: Submit names and contact details of proposed suppliers and installers.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Shop fabricated or assembled items ready for delivery to the site.
- Openings prepared to receive assemblies.
- Site erected assemblies on completion of erection, before covering up by cladding and encasing.
- Surfaces prepared for, and immediately before, site applied finishes.
- Completion of installation.

2 PRODUCTS

2.1 DELIVERY AND STORAGE

General

Requirement: Deliver joinery units to site in unbroken wrapping or containers and store so that its moisture content is not adversely affected. Do not store in areas of wet plaster. Keep storage time to a minimum by delivering items only when required for installation.

2.2 JOINERY MATERIALS AND COMPONENTS

Visible work

Clear finished timber and veneer: Make sure all visible surfaces are free of branding, crayon or chalk marks and of blemishes caused by handling.

Joinery timber

Hardwood for trim: To AS 2796.1.

Softwood for trim: To AS 4785.1.

Finished sizes of milled timbers: Not less than the documented dimensions unless qualified by a term such as nominal, out of or ex to which industry standards for furnished sizes apply.

Melamine overlaid particleboard: Particleboard overlaid on both sides with low pressure melamine.

Dry-processed fibreboard (including medium density fibreboard)

Standard: To AS/NZS 1659.2.

Melamine overlaid medium density fibreboard: Medium density fibreboard (STD MDF) overlaid on both sides with low pressure melamine.

2.3 JOINERY ASSEMBLIES

Pinths

Material: Select from the following:

- High moisture resistant medium density fibreboard. Thickness: 18 mm.

Fabrication: Form up with front and back members and full height cross members at not more than 900 mm centres.

Finish: Plywood H3.2

- Colour: Hoop Pine.

Fasteners: Conceal with finish.

Installation: Scribe to floor and secure to wall to provide level platform for carcasses.

Carcasses

Material: Select from the following:

- Overlaid high moisture resistant particleboard.
- Overlaid high moisture resistant medium density fibreboard.

Thickness: 18 mm.

Joints: Select from the following:

- Screws and glue.

Adjustable shelves: Support on proprietary pins in holes bored at equal centres vertically.

- Spacing: 32 mm.

Finish: Plywood H3.2 with Hoop Pine Veneer

Fasteners: Conceal with finish.

Installation: Secure to walls at not more than 600 mm centres.

Drawer fronts and doors

Material: Select from the following:

- Melamine overlaid high moisture resistant particleboard.
- Melamine overlaid high moisture resistant medium density fibreboard.

Thickness: 18 mm.

Door size: Not exceeding 1.5 m² on face, with 2400 mm maximum height and 900 mm maximum width.

Drawer fronts: Rout for drawer bottoms.

Finish: Ply grade A H3.2

Colour: Hoop Pine veneer

Edging: 2mm ABS

Drawer backs and sides

Material: Plywood H3.2

Thickness: 12 mm.

Colour: Hoop Pine

Installation: Mitre corners leaving outer skin of foil intact, finish with butt joints, glue to form carcass and screw to drawer front. Rout for drawer bottoms.

Drawer bottoms

Material: 10mm Prefinished HMR board with 2mm ABS.

Thickness: 10 mm.

Colour: White

Drawer and door hardware

Hinge types: Concealed metal hinges with the following features:

- Nickel plated.

- Adjustable for height, side and depth location of door.
- Self-closing action.
- Hold open function.

Hold open angle: 110°

Plane hinges: Chrome plated steel, extending full height of doors.

Slides: Metal runners and plastic rollers with the following features:

- 30 kg loading capacity.
- Closure retention.
- White thermoset powder coating or nickel plated.

Pulls: Taper Bow Satin Finish

2.4 WORKING SURFACES

Exposed edges: Extend laminate over shaped nosing, finishing more than 50 mm back on underside. Splay outside corners at 45°.

Balance underside: Extend laminate to the undersides of benchtops.

Installation: Scribe to walls. Fix to carcass at least twice per 600 mm length of benchtop.

Joint sealing: Fill joint with sealant matching finish and clamp with proprietary mechanical connectors.

3 EXECUTION

3.1 JOINERY

General

Joints: Provide materials in single lengths whenever possible. If joints are necessary, make them over supports.

Framing: Frame and trim where necessary for openings, including those required by other trades.

Concealed surfaces: Prime surfaces concealed by substrates.

Deficiencies: Examine joinery units for completeness and remedy deficiencies.

Substrate: Damp clean and vacuum substrate surfaces that will be permanently concealed.

Openings: Provide openings for the following: Under bench hedges

Acclimatization

General: Acclimatize the joinery items by stacking in the in-service conditions with air circulation to all surfaces after the following are complete:

- Air conditioning operational.
- Lighting operational.
- Site drainage and stormwater works are complete.
- Space fully enclosed and secure.
- Wet work complete and dry.

Accessories and trim

General: Provide accessories and trim necessary to complete the installation.

Fasteners

Visibility: Do not provide visible fasteners except in the following locations:

- Inside cupboards and drawer units.
- Inside open units, in which case provide proprietary caps to conceal fixings.

Visible fasteners: Where fasteners are unavoidable on visible joinery faces, sink the heads below the surface and fill the sinking flush with a material compatible with the surface finish. In surfaces which are to have clear or tinted finish, provide matching wood plugs showing face (not end) grain. In surfaces which are to have melamine finish, provide proprietary screws and caps finished to match.

Fix joinery units to substrates as follows:

- Floor mounted units: 600 mm centres maximum.

- Wall mounted units: To each riggering and/or stud stiffener.

Fasteners: Screws with washers into timber or steel framing, or masonry anchors.

Adhesives

General: Provide adhesives to transmit the loads imposed and for the rigidity of the assembly, without causing discolouration of finished surfaces.

Finishing

Junctions with structure: Scribe, plinths, benchtops, splashbacks, ends of cupboards, kickboards and returns to follow the line of structure.

Joints: Scribe internal and mitre external joints.

Edge strips: Finish exposed edges of sheets with edge strips which match sheet faces.

Matching: For surfaces which are to have clear or tinted finish, arrange adjacent pieces to match the grain and colour.

Hygiene requirements: To all food handling areas and voids at the backs of units in all areas, seal all carcass and junctions wall/floor, and cable and pipe entries with silicone beads for vermin proofing. Apply water resistant sealants around all plumbing fixtures and make sure sealants are fit for purpose.

Benchtops

Installation: Fix to carcass at least twice per 600 mm length of benchtop.

Joint sealing: Fill joints with sealant matching the finish colour and clamp with proprietary mechanical connectors.

Edge sealing: Seal to walls and carcasses with a sealant, which matches the finish colour.

Splashbacks

Refer to Tilings section for splashbacks.

Labelling

General: Permanently mark each unit of furniture with the manufacturer's name, on an interior surface.

3.2 COMPLETION

Protection

Timber boards: Provide full timber or plywood casing.

Cleaning

Temporary coatings: On or before completion of the works, or before joining up to other surfaces, remove all traces of temporary protective coatings.

Requirement: Remove all dust, marks and rubbish from all surfaces and internal spaces. Clean and polish all self-finished surfaces such as anodised and powder coated metals, sanitary ware, glass, tiles and laminates.

4. COMBINED SELECTIONS

4.1 LOCKER & BENCH SEAT SYSTEMS

Properties		
Product	Compact Laminate Chair	Compact Laminate Bench system with 12mm compact laminate seats fixed to proprietary frames or separate pre-engineered pedestal.
Material	Laminate Multipurpose Compact Laminate Three	Laminate Multipurpose Compact Laminate Three
Looks	Any Looks - All key different	Front and bracket system at 400mm, Chrome structural aluminium.
Height	1800mm range	Pre-engineered pedestal system pre-engineered or pre-engineered bench seat systems.
Colour	Chromatic	
Finishing	Allow to be in black seat with 400mm chrome head stainless steel to be put back. Allow for 12mm back plate around perimeter of lockers and seating to seat to close off side gaps.	

4.2 FOOTPLATING (R&B)

Properties	Integration - Chromatic
Product Type	400mm Gold Peak with 12mm chrome edge welded to the wall base and covered into the depth of the wall.
Material	Aluminium with a 12mm chrome edge bonded to the wall base and at ends.
Colour	Clear Polyurethane Finish - 4 coats
Support	Allow for triangular supports fixed to wall base with concealed screws.
Finishing	Allow for 12mm chrome and 12mm chrome into black 12mm chrome from both ends and by the centre.

Properties	Description (Unit)	Properties	Allow (Unit)
Product Type	Carbon foot Herring 1/4" x 1/2" with A and B Herring 1/4" x 1/2" (or equally an approved product).	Product Type	Carbon foot Herring 1/4" x 1/2" with A and B Herring 1/4" x 1/2" (or equally an approved product).
Material	3/16" x 1/2" x 1/2" (or)	Material	3/16" x 1/2" x 1/2" (or)
Colour	Clear finish to top and flat black to side, rear and backing panels including channels.	Colour	Clear finish to top.
Support	Allow for wall panels and backing panel. To be secure fixed together using suitable fastening systems.	Support	Low wall - 1000mm high walls with 100mm (or) 100mm (or) backing with 100mm (or) plywood which fixed to all sides. Set frames 10mm back from front edge of the top. Top fixed to - 100mm (or) 100mm (or) wall. Allow for potential frame under bench needed to DTS side with adequate fast. (Frame back and allow to secure fix back into wall framing) Silicone seal around the edges.
Accessories	Allow to build in drawer unit with 2 drawers using 2mm extrusion, handle and lock. Allow for dual cut outs for service installation.	Accessories	Top to have cut outs for data systems. Allow for additional cut outs to service panel and other related frame items.
Finishing	Allow for 2mm thick ABS edging.	Finishing	Allow for 2mm thick ABS edging.

Preparation	MCA Offices (Manager & Judges' Clerk Office)		
Product Type	Cedar full Herring Fly with A and B Herring Fly looking in exactly an approved product.		
Material	20mm x 20mm steel legs in 20mm x 16mm with endcaps and elbows.		
Colour	Clear finish to legs and full black to flange, rear and backing panels including covers.		
Support	Allow for steel panels and backing panel. To be secured together using H-bolts fastening systems.		
Accessories	Allow to build in stainless steel with 30mm x 20mm using 30mm x 20mm, handles and locks. Allow for handling feet to each unit.		
Cutting	Allow for 20mm thick AOS cutting.		
Preparation	Kitchen (Kitchen Bench)		
Top	Stem Cedar (Cedar White) Top in exactly an approved product.		
Covers	Stem Cedar full Herring Fly with A and B Herring Fly looking.		
Material	Not Allowed.		
Colour	Clear finish to legs and full black to flange, rear and backing panels including covers.		

White Goods	Kitchens
Fridge/Freezer	Fisher and Pyke Active Smart Fridge –Top and Freezer 44"/L, EZKleen Stainless steel or equally an approved product. Left Hand hinge
	 1695 680 715 H W D
Microwave	Panasonic Microwave NN-ST7855 Stainless Steel Finish or equally an approved product.
	Further Clarification of the Architectural Specification: Joinery White Goods: Supply new Fridge / Freezer and Microwave for the Courthouse Kitchen (Tea Room) and also for the Judges Residence Kitchen; Hot Water Boiler System for: - Courthouse Kitchen (Tea Room) - Judges Residence Kitchen

0552B METALWORK - FABRICATED

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide metal fixtures, as documented.

Performance

Requirements:

- Undamaged, plumb, level and straight.
- Free of surface defects or distortions.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.3 STANDARDS

General

Access for maintenance: To AS 1667.

Tactile indicators: To AS/NZS 1428.4.1.

1.4 SUBMISSIONS

Operation and maintenance manuals

General: Submit **manufacturer's** published recommendations for service use.

Products and materials

Manufacturer's data: Submit **manufacturer's** product data including standard drawings and details.

Proprietary items: Submit the **manufacturer's** standard drawings and details showing:

- Methods of construction.
- Assembly and fixing, with dimensions and tolerances.

Stainless steel: For each batch of stainless steel supplied to the works, submit the certificate of conformance or test certificate to the applicable standard, as documented.

Stainless steel welding: Before fabrication commences, submit evidence of qualification of the welding procedure by testing to AS/NZS 1554.6 clause 4.7 or evidence of prequalification to AS/NZS 1554.6 clause 4.13.

Shop drawings

General: Submit shop drawings to a scale that best describes the detail, showing the following information:

- Overall dimensions.
- Details of fabrication and components.
- Details of fabrication involving other trades or components.
- Information necessary for site assembly.
- Proposals for the break-up of large items as required for delivery to the site.
- Proposed method of joining the modules of large items.

Subcontractors

General: Submit names and contact details of proposed suppliers and installers.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Shop fabricated or assembled items ready for delivery to the site.

- Commencement of shop or site welding.
- Site erected assemblies on completion of erection, before covering up by cladding and encasing.
- Steel surfaces prepared for, and immediately before, site applied finishes.

2 PRODUCTS

2.1 MATERIALS AND COMPONENTS

Metals and components:

Performance: Provide metals in sections of strength and stiffness suited to their required function, finish and method of fabrication.

3 EXECUTION

3.1 CONSTRUCTION GENERALLY

Metals

Performance: Provide metals capable of transmitting the loads imposed and sufficient for the rigidity of the assembly without causing deflection or distortion of finished surfaces.

Incompatible metals: Separate using concealed layers of suitable materials in appropriate thicknesses.

Fasteners

Performance: Provide non-galvanic corrosion fasteners.

Materials: Provide fasteners in materials of mechanical strength and corrosion resistance at least equal to that of the lowest resistant metal joined.

To copper and copper alloys: Provide copper or copper-alloy fixing devices only.

To aluminium and aluminium alloys: Provide aluminium alloy or non-magnetic stainless steel fixing devices only.

To stainless steel: Provide appropriate stainless steel materials only.

Fabrication

Workshop: Fabricate and pre-assemble items in the workshop wherever practicable.

Edges and surfaces: Keep clean, neat and free from burrs and indentations. Remove sharp edges without excessive radiusing.

Tube bends: Form bends in tube without visibly deforming the cross section.

Colour finished work: Match colours of sheets, extrusions and heads of fasteners.

Thermal movement: Accommodate thermal movement in joints and fastenings.

Tolerances: ± 2 mm from design dimensions.

Joints

General: Fit joints to an accuracy appropriate to the class of work. Finish visible joints made by welding, brazing or soldering using grinding, buffing or other methods appropriate to the class of work, before further treatment.

Self-finished metals: Free of surface colour variations, after jointing.

Joints: Fit accurately to a fine hairline.

Marking

General: Provide suitable and sufficient marks or other means for identifying each member of site-erected assemblies, and for their correct setting out, location, erection and connection. Mark bolted connections to show the bolting category. Do not mark stainless steel by notching.

Splicing

General: Provide structural members in single lengths.

3.2 WELDING AND BRAZING

Welding

Quality: Provide finished welds which are free of surface and internal cracks, slag inclusion, and porosity.

Site welds: Avoid site welding wherever possible. If required, locate site welds in positions for down hand welding.

Butt weld quality level: Not inferior to the appropriate level recommended in AS/NZS 1554.1 Section 6, AS/NZS 1554.6 Section 6 or AS 1685 Appendix A, as appropriate.

3.3 STAINLESS STEEL FABRICATION

Welding stainless steel

Certification of welders: To AS 1796.

3.4 PIPE RAIL BALUSTRADES

Fabrication

Method: Welding

Joints: Produce smooth unbroken surfaces at joints. Scribe the joints between posts and rails. Make end-to-end joints over an internal sleeve.

Bends: Make changes of direction in rails by evenly curved pipe bends.

Free ends: Seal the free ends of pipes with fabricated or purpose-made end caps.

Fixing to structure

General: Provide fabricated predrilled or purpose-made brackets or post bases, and attach the piping to the building structure with fixings, including bolts into masonry anchors, and coach screws or bolts into timber, of metal compatible with the piping.

Galvanizing

General: If possible, complete fabrication before galvanizing; otherwise apply a zinc-rich primer to affected joint surfaces.

3.5 COMPLETION

Cleaning

Temporary coatings: On or before completion of the works, or before joining up to other surfaces, remove all traces of temporary coatings used as a means of protection.

4 SELECTIONS

Steel balustrade components: schedule

Member	Sizes (mm)	Spacing	Material/Finish (All Steel is grade 316 SS)
Posts	40 mm x 2.6 SCH5	1200cns max	Stainless steel- Satin Finish
Handrail	40 mm x 2.6 CH5	Refer detail. Allow for 10mm rod stubs and weld Handrail to top rail	Stainless steel- Satin Finish
Top and Bottom rail	25 mm rod	Refer detail - welded to post and balusters	Stainless steel- Satin Finish
Balusters	20 diameter Rod	100mm welded top and bottom rail	Stainless steel- Satin Finish
Base Plate	Allow for welded base plate with 2 M16 chemset into concrete.		
Balustrade to Structural post	Allow for 6mm end plate to Top and Bottom rails at both ends. Fix rails to Steel veranda posts with 2 x M8 Halo bolt 40mm apart.		

Stair handrails:

Member	Sizes (mm)	Brackets	Material/Finish
Handrail c/w with extensions and turn downs as per AS1428.1	40 mm x 2.6 CH5 316 SS	Allow for Stainless steel metal brackets at 1200 cns bolted to block walls	Stainless steel- Satin Finish

Member	Sizes (mm)	Brackets	Material/Finish
		with M12 Dome head bolts.	

External Safety Rail

Member	Sizes (mm)	Brackets	Material/Finish
Handrail ch/w with extensions and turn downs as per AS1428.1	40 mm x 2.6 CHS 316 SS	Allow for Stainless steel metal brackets at 1200 c/s bolted to block walls with M12 Dome head bolts.	Stainless steel- Satin Finish

Member		Material/Finish
Grab Rail 1 - AWC	Caroma VITRU comfort Grab rail H 960mm x V 600mm fixed to wall as per manufactures specification. Right hand transfer. Refer to plan for WC location and transfer position. 45 deg bend Rails acceptable.	Stainless steel- Satin Finish
		
Grab rail 2 - AWC	Caroma VITRU comfort Grab rail H 450mm fixed to wall as per manufactures specification.	Stainless steel- Satin Finish

Member		Material/Finish
		
Grab rail 3 – Ambulant Toilet	Caroma VITRU comfort Grab rail H 450mm x 450 90 bend Rh and LH fixed to toilet partition per manufactures specification.	Stainless steel- Satin Finish
		
Shelve- AWC	Rynatt or similar 6295 x 14 Shelf (Suits Australian Standards AS1428.1-2009)	Stainless steel- Satin Finish
		

0611 RENDERING AND PLASTERING

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide plaster finishes as documented.

Performance

Requirements:

- Resistant to impacts expected in use.
- Free of irregularities.
- Consistent in texture and finish.
- Firmly bonded to substrates for the expected life of the application.
- Without obvious shrinkage cracks.
- As a suitable substrate for the nominated final finish.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements

1.3 INTERPRETATION

Abbreviations

General: For the purposes of this work section the following abbreviations apply:

- CRF: Cement render –finish.
- CRM: Cement render –medium.
- CRS: Cement render –stronger.
- CRW: Cement render –weaker.
- GPF: Gypsum plaster –finish.

Definitions

General: For the purposes of this work section the following definitions apply:

- Base coat: A plaster coat applied before the application of the finish coat.
- Bonding treatment: A treatment of a substrate which improves adhesion of a plaster system.
- Finish coat (rendering and plastering): The final coat of a coating system.
- Finishing treatment (plastering): The treatment applied to a finish coat which may include processes and results.
- Plaster: A mixture of binders, aggregate and water which is applied to substrates in a plastic state and dries and cures to a hard surface which may subsequently be decorated:
 - . Cement plaster: Contains Portland cement as the principal binder.
 - . Gypsum plaster: Contains hydrated or anhydrous calcium sulfate as the principal binder.
- Plastering: The process of coating the framing or solid surfaces of a building with a plastic material which hardens and then may be decorated or remain self-finished.
- Plastering system: One or more coats of plaster and associated treatments comprising some or all of the following in sequence:
 - . Base coat 1 or 2.
 - . Bonding treatment.
 - . Finish coat.
 - . Finishing treatment.
- Render, rendering: plaster, plastering, usually single coat and usually cement/lime sand.
- Substrate: The surface to which a material or product is applied.

1.4 TOLERANCES

Tolerances table

Description	Alignment	Tolerance
Walls and other vertical structures	Vertical	6 mm in 2400 mm
Reveals sides	Vertical	3 mm in 1800 mm
Reveals head up to 1800 mm	Horizontal	3 mm in 1800 mm
Reveals head over 1800 mm	Horizontal	5 mm max
Reveals, piers, beams, wall stop ends up to 300 mm	Square	3 mm max
Reveals, piers, beams, wall stop ends over 300 mm	Square	5 mm max
Radius of corners	Round	Should not vary by more than $\pm 10\%$ over the length of the aris.

1.5 SUBMISSIONS

Samples

Plaster systems: Prepare prototypes of each plaster system complete with beads and other embedded items:

- Size: 1200 x 2400 mm.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Prototypes ready for inspection.
- Substrates immediately before applying base coats.
- Finish treatments before decoration.

2 PRODUCTS

2.1 MATERIALS AND COMPONENTS

Accessories

Beads: Provide metal proprietary sections manufactured for fixing to substrates and/or embedding in the plaster to form and protect plaster edges and junctions.

Metal lath: Provide a proprietary product manufactured from raised expanded metal for use with plaster:

- Mass/unit area: 1.84 kg/m² or greater.
- Material thickness: 0.70 mm or greater.
- Mesh size: 9.5 x 28.6 mm.

Metallic coatings to AS 1397. For beads or lath in cement plaster: To the Corrosion resistance and durability table.

Admixtures

Plasticisers or workability agents: Do not use in cement plasters.

Aggregates

Sand: Fine, sharp, well-graded sand with a clay content between 1% and 5%, and free from efflorescing salts.

Sand grading for base coat plaster table

Sieve size	Percent passing	
	Minimum	Maximum
4.75 mm	100	100

Sieve size	Percent passing	
	Minimum	Maximum
2.36 mm	90	100
1.18 mm	60	90
600 µm	35	70
300 µm	10	30
150 µm	0	5
75 µm	0	3

Plaster for autoclaved aerated concrete

General: Provide a proprietary product manufactured for use with the wall system.

Bonding products

General: Provide proprietary products manufactured for bonding cement-based plaster to solid substrates.

Cement

Standard: To AS 3972.

Type: GP.

Colouring products

General: Provide proprietary products manufactured for colouring cement plaster.

Integral pigment proportion: 5% maximum weight of cement.

Cornice cement

General: Provide a proprietary product manufactured for use with the cornice.

Corrices

Cast plaster: Proprietary item.

Corrosion resistance and durability

Compliance: To the Corrosion resistance and durability table or provide proprietary products with metallic and/or organic coatings of equivalent corrosion resistance and as follows:

- Galvanize: To AS/NZS 4680.

Corrosion resistance and durability table

Atmospheric corrosivity category to AS 4312	Metal fast, beads and embedded items	Minimum cement content (mix type) above damp-proof course
C1 and C2	Galvanize after fabrication	CRW
	300 g/m ² Stainless 316	
C3	Powder coated aluminium	CRM
	Stainless 316 Powder coated aluminium	CRM
C4 and T ¹	Stainless 316 Powder coated aluminium	CRS

¹ Avoid organic coating in Category T zones.

Curing products

General: Provide proprietary products manufactured for use with the plaster system.

Gypsum plaster

General: Provide a proprietary product containing calcium sulfate hemihydrate with additives to modify setting.

Lime

Limes for building: To AS 1672.1.

Lime putty

General: Prepare lime putty as follows:

- Stand dry hydrate of lime to AS 1672.1 and water for 24 hours or more without drying out.

- Stand quicklime and water for 14 days or more without drying out.

Mixes

General: Select a mix proportion to suit the conditions of application.

Measurement: Measure binders and sand by volume using buckets or boxes. Do not allow sand to bulk by absorption of water.

Plaster mixing: Machine mix for 3 to 6 minutes.

Strength of successive coats: Make sure successive coats are no richer in binder than the coat to which they are applied.

Mix proportion table – Cement render, by volume

Mix type		Substrate	Upper and lower limits of proportions by volume		
			Cement	Lime	Sand
Single or multi-coat systems with integral finishing treatments Base coats in multi-coat systems with cement or gypsum finishes	CRS	Dense and smooth concrete and masonry	1 1	0 0.5	3 4.5
	CRM	Regular clay or concrete masonry	1 1	0.5 1	4.5 6
	CRW	Lightweight concrete masonry and other weak substrates	1 1	1 2	6 9
Second coat - Internal	CRF	Cement render base coats	1 1	1 2	6 9
Second coat - External	CRF	Cement render base coats	1 1	1 2	6 6

Mix proportion table – Gypsum finish coat, by volume

Mix type		Substrate	Upper and lower limits of proportions by volume			
			Gypsum	Cement	Lime putty	Sand
Gypsum finish coats	GPF	Cement render base coats	1	-	1.5	-
			1	-	2	-

Mix proportion table – Gypsum finish coat, by weight

Gypsum plaster (kg)	Lime putty (kg)
17	25
34	50
51	75

Control joint products

General: Provide proprietary products manufactured for use with the plastering system and to accommodate the anticipated movement of the substrates and/or the plaster.

Water

General: Clean and free from any deleterious matter.

3 EXECUTION

3.1 PREPARATION

Substrates

General: Provide substrates as follows:

- Clean and free from any deposit or finish which may impair adhesion of plaster.
- If framed or discontinuous, support members in full lengths without splicing.
- If solid or continuous, remove excessive projections and fill voids and hollows with plaster stronger than the first coat and not weaker than the substrate.

Absorbent substrates: If suction is excessive, control it by dampening without over-wetting, and do not plaster substrates showing surface moisture.

Dense concrete: If not sufficiently rough to provide a mechanical key, roughen by scabbling or the like to remove 2 mm of the lallance and expose the aggregate before applying a bonding treatment.

Painted surfaces: Remove paint and hack the surface at close intervals.

Untrue substrates: If the substrate is not sufficiently true for conformity with the thickness limits for the plaster system, or has excessively uneven suction resulting from variations in the composition of the substrate, apply additional coats without exceeding the thickness limits for the substrate or system.

Beads

Location: Fix beads as follows:

- Angle beads: At all external corners.
- Drip beads: At all lower terminations of external plaster.
- Beads for control of movement: At all control joints.
- Stop beads: At all terminations of plaster and junctions with other materials or plaster systems.

Joints in beads: Provide dowels to maintain alignment.

Mechanical fixing to substrate: ≤ 300 mm centres.

Bonding treatment

General: If bonding treatment is required, throw a wet mix onto the background. Mix proportions to the following:

- Cement plaster (cement:sand): 1:2.
- Gypsum plaster (gypsum:sand): 1:2.

Curing: Keep continuously moist for 5 days or more and allow to dry before applying plaster coats.

Thickness: $\geq 3 < 6$ mm.

Embedded items

General: To the Corrosion resistance and durability table. If there are water pipes and other embedded items, sheath them to permit thermal movement.

Lath

Location: Provide lath as follows:

- Chases: If chases or recesses are 50 mm wide or greater, fix metal lath extending 75 mm or more beyond each side of the chase or recess.
- **Fit metal lath to masonry and concrete substrates:**
- Metal and other non-porous substrates: Fix metal lath to provide a key.

Installation: Fix lath as follows:

- General: Run the long way of the mesh across supports with strands sloping downwards and inwards from the intended face of the plaster.
- Fixing: Mechanically fix at centres of 150 mm or less.
- Laps: Tie with 1.25 mm galvanized wire at centres of 150 mm or less. Do not stop edges of sheets at corners but bend around.
- On solid substrates: Space the lath 5 mm or more clear of the substrate.
- Support spacing: ≤ 400 mm.

3.2 APPLICATION

Plastering

Base coats: Scratch-comb each base coat in two directions when it has stiffened.

Metal lath: Press the plaster through the apertures of expanded metal lath and wings of beads.

Incidental work

General: Return plaster into reveals, beads, sills, recesses and niches. Plaster faces, ends, and soffits of projections in the substrate, such as string courses, sills, pilasters and corbels. Run neatly finished

throating on soffits of external projections. Trim around openings. Plaster exposed internal surfaces of built in cupboards.

Joining up

General: If joining up is required, make sure joints are imperceptible in the finished work after decoration.

Control joints

General: Provide joints in the finish to coincide with control joints in the substrate. Make sure the joint in the substrate is not bridged during plastering.

Size

- Depth: Extend the joint right through the plaster and reinforcement to the substrate.
- Width: 3 mm, or the same width as the substrate joint, whichever is greater.

Damp-proof courses: Do not continue plaster across damp-proof courses.

Plastering on metal lath: Provide control joints to divide the plastering area into rectangular panels of 10 m² or less.

V-joints: Provide V-joints, cut right through the plaster to the substrate, at the following locations:

- Abutments with metal door frames.
- Abutments with other finishes.
- Junctions between different substrates.

Corices

General: Accurately cut and mitre corners. Match and align ornament. Do not make butt joints in the length of a cornice unless required, or if full lengths are not available.

Installation: Butter edges, mitres and joins for the full length of the cornice with adhesive.

Mechanical fixing: If cornice projects across a ceiling 400 mm or more, provide additional mechanical fixing as follows:

- Fixing centres: 4 600mm.

Temperature

General: If the ambient temperature is less than 10°C or more than 30°C, make sure the temperature of mixes, substrates and reinforcement at the time of application are between 5°C and 35°C.

3.3 FINISHES

Finishing treatments

Plain even surfaces: Work the hardening plaster as follows:

- Bag: Rub the finish coat when set firm with a hessian bag or similar.
- Carborundum stone: Rub the finish coat when set hard with a carborundum stone to achieve a finish free from sand.
- Foam float: Float finish coat on application with a wood or plastic float to an even surface and finish with a foam float to achieve a fine sand textured finish.
- Steel trowel: Steel trowel finish coat to a smooth dense surface which is not glass-like and is free from shrinkage cracks and crazing.
- Wood or plastic float: Float the finish coat on application to an even surface with a wood or plastic float.

Ornamental patterned surfaces: Work the hardening plaster with a trowel or other tool.

Sprayed textured surfaces: Spray plaster onto a substrate using a purpose-designed machine.

Stippled textured surfaces: Work the hardening plaster with a stiff brush.

Rough thrown surfaces: Throw plaster onto a substrate or pebbles onto a plastic plaster base.

Specialist plaster finishes

Polymer modified render:

- Basecoat render: Proprietary polymer modified cementitious render supplied as a complete plastering system.
- Finish coats: Proprietary/trowelled on coloured and textured polymer modified finish coats.

Polished plaster: In situ applied plaster system incorporating selected stone dust in a proprietary matrix producing a smooth polished surface with visual patterning.

Glass bead coatings: Glass beads bound in a proprietary matrix.

3.4 COMPLETION

Curing

General: Prevent premature or uneven drying out and protect from the sun and wind.

Keeping moist: If a proprietary curing agent is not used, keep the plaster moist as follows:

- Base coats and single coat systems: Keep continuously moist for 2 days and allow to dry for 5 days before applying further plaster coats.
- Finish coats: Keep continuously moist for 2 days.

4 SELECTIONS

4.1 SCHEDULES

Plastering construction schedule – Internal Surfaces only

Property	A
Product	Unitek Uni-Dry Coat® HS Lite Render™ (High build, lightweight) or equally an approved product.
Substrate material	Block Walls Internal
Substrate Moisture Level	Must be less than 12% WME

0621 WATERPROOFING – WET AREAS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide wet area waterproofing systems as documented.

Performance

Requirements:

- Grade to floor wastes, to dispose of water without ponding.
- Prevent moisture entering the substrate or adjacent areas.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.3 STANDARDS

Wet areas

Standard: To AS 3740.

1.4 INTERPRETATION

Definitions:

General: For the purposes of this work section the definitions given in AS 3740 and the following apply:

- Bond breaker: A system preventing a membrane bonding to the substrate, bedding or lining.
- Membranes (waterproof): Impervious barriers to liquid water which may be:
 - . Installed below floor finishes.
 - . Installed behind the wall sheeting or render and termed External.
 - . Installed to the face of the wall sheeting or render and termed Internal.
 - . Applied in liquid or gel form and air cured to form a seamless film.
 - . Applied in sheet form with joints lapped and sealed.
- Preformed shower base: A preformed, prefinished vessel (including integral upstands) installed as the finished floor of a shower compartment, and provided with a connection point to a sanitary drainage system.
- Shower tray: An internal or external liquid or sheet membrane system used to waterproof the floor and the wall/floor junctions of a shower area.
- Substrate: The surface to which a material or product is applied.
- Waterproof (WP): The property of a material that does not allow moisture to penetrate through it.
- Waterproofing systems: Combinations of membranes, flashings, drainage and accessories which form waterproof barriers and which maybe:
 - . Loose-laid.
 - . Bonded to substrates.
- Water resistant (WR): The property of material that restricts moisture movement and will not degrade under conditions of moisture.
- Wet area: An area within a building supplied with a floor waste.

1.5 SUBMISSIONS

Products

Documentation: Submit copies of product manufacturer's:

- Product technical data sheets.
- Safety data sheets (SDS).

- Type tests certificates verifying conformance to AS/NZS 4658.

Records

Place records: Photographically record the application of membranes and information as follows:

- Date.
- Portion of work.
- Substrate preparation.
- Protection provided from traffic.

Samples

General: Submit 300 x 300 mm samples of each type of membrane.

Shop drawings

Submit shop drawings showing:

- Junctions with vertical surfaces and upstands.
- Junctions at perimeters.
- Drainage details.
- Control joints.
- Flashings.
- Penetrations.
- Corners.
- Terminations and connections.

Warranties

General: Submit details of the proposed warranty terms, form and period.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Substrate preparation completed.
- Secondary layers preparation completed.
- Before membranes are covered up or concealed.
- Flood testing, if applicable.

2 PRODUCTS

2.1 GENERAL

Membranes

Standard: To AS/NZS 4658.

Membrane systems

Requirement: Provide a proprietary membrane systems certified as suitable for the intended wet area waterproofing.

Water stop angles

Material: Rigid, corrosion resistant angles compatible with the waterproof membrane system.

Bond breakers

Requirement: Compatible with the flexibility class of the membrane to be used.

Material: Purpose made bond breaker tapes and closed cell foam backing rods or fillets of sealant.

Flashings

Requirement: Flexible waterproof flashings compatible with the waterproof membrane system.

Liquid membrane reinforcement

Requirement: Flexible fabric compatible with the waterproof membrane system.

Sealants

Requirement: Waterproof, flexible, mould-resistant and compatible with host materials.

Adhesives

Requirement: Waterproof and compatible with host materials.

3 EXECUTION

3.1 PREPARATION

Substrates

General: Make sure substrates are as follows:

- Clean and free of any deposit or finish which may impair adhesion of membranes.
- If walls are plastered, remove loose sand.
- If walls or floors are framed or discontinuous, support members are in full lengths without splicing.
- If floors are solid or continuous:
 - Excessive projections are removed.
 - Voids and hollows greater than 10 mm with abrupt edges are filled with a cement:sand mix not stronger than the substrate nor weaker than the bedding.
 - Depressions less than 10 mm are filled with a latex modified cementitious product with feathering eliminated by scabbling the edges.
 - Cracks in substrates wider than 1.5 mm are filled with a filler compatible with the membrane system.

External corners: Round or chamfer edges.

Moisture content

Concrete substrates: Cure for at least 21 days.

Moisture content: Verify that the moisture content of the substrate is compatible with the water vapour transmission rate of the membrane system by testing to AS 1684 Appendix A.

Falls

Substrate: If the membrane is directly under the floor finish, make sure the fall in the substrate conforms to the fall documented for the finish.

Sheet substrate fastening

Requirement: Fasten or adequately fix to the supporting structure.

Control joints

Finishes: Align control joints in finishes and bedding with control joints or changes in materials in the substrate.

Water stop angles

Requirement: Provide water stop angles at door thresholds and shower enclosures to support the waterproof membrane at junctions between waterproofed and non-waterproofed areas.

Sizing: Size the vertical leg of the water stop angle to conform to the requirements of AS 3740.

Corners: Cut the horizontal leg and bend the vertical leg at corners instead of forming vertical joints between separate lengths of angle.

Fixing: Fix water stop angles to the substrate with compatible sealant or adhesive and corrosion-resistant countersunk or wafer head screws.

Priming

General: If required by the membrane manufacturer, prime the substrates with a primer compatible with the membrane system.

Bond breakers

Requirement: After the priming of surfaces, provide bond breakers at all wall/floor, hob/wall junctions and at control joints where the membrane is bonded to the substrate.

Sealant fillet bond breakers:

- Application: Form a triangular fillet or cove of sealant to internal corners within the period recommended by the membrane manufacturer after the application of the primer.
- Widths: 5 mm x 5 mm to vertical corners, 6 mm x 6 mm to 9 mm x 9 mm to horizontal corners.

Backing rod bond breakers: Retain in position with continuous length of tape pressed firmly in place against the surfaces on each side of the rod.

3.2 APPLICATION

Protection

General: Protect membrane from damage during installation and for the period after installation until the membrane achieves its service characteristics that resist damage.

Extent of waterproofing

Waterproof or water resistant surfaces: To the requirements of BCA F1.7.

Vertical membrane terminations

Upstands: At least 150 mm above the finished tile level of the floor or 25 mm above the maximum retained water level, whichever is the greater.

Anchoring: Secure sheet membranes along the top edge.

Edge protection: Protect edges of the membrane.

Flashings

Junctions between waterproof surfaces: Provide a bond breaker at internal corners behind flashings.

Junctions between waterproof surfaces and other surfaces: Provide a bead of sealant at the following junctions:

- Waterproof and water-resistant surfaces.
- Water-resistant and water-resistant surfaces.
- Water-resistant and non water-resistant surfaces.

Perimeter flashings: Provide continuous flashings to the full perimeter of waterproof areas at wall/floor junctions and to water stop angles.

Vertical flashings: Provide vertical corner flashings continuous across wall/wall junctions to at least 1800 mm above finished floor level.

Vertical liquid applied flashings:

- Return legs at least 40 mm on each wall.
- Overlap the vertical termination of the floor waterproofing membrane at least 20 mm.

Vertical sheet flashings:

- Return legs at least 50 mm on each wall.
- Overlap shower tray upstands at least 50 mm.
- Do not penetrate flashing with wall lining fasteners.

Reinforcement: At coves, corners and wall/floor junctions with gaps greater than 3 mm reinforce liquid applied membranes with reinforcement fabric tape recommended by the membrane manufacturer.

Fold the tape in half lengthways and imbed it in the first flashing coat of membrane with one half of the tape on each side of the corner or joint. Apply a second coat of liquid membrane to seal the fabric.

Drainage connections

Floor wastes: Provide floor wastes of sufficient height to accommodate the thickness of floor finishes and bedding at the outlet position. Position drainage flange to drain at membrane level. Turn membrane down 50 mm minimum into the floor waste drainage flanges, and adhere to form a waterproof connection.

Floor wastes in shower trays: Provide drainage of the tile bed and a waterproof connection between the tray and the drain.

Preformed drainage channels:

- With continuous drainage flanges: Provide a continuous waterproof connection between the membrane and the channel.
- Without drainage flanges: Provide continuous waterproofing under the channel and terminate the membrane at a floor waste with a recessed drainage flange.

Enclosed hobless showers with trench drain located below screen

Framed or frameless shower screens: Install a water stop angle where the outer edge of the trench drain to the perimeter of the shower will be installed. Size the angle so that the vertical leg finishes at the underside of the tiles. Support and adhere the membrane over the water stop angle and terminate the membrane at floor wastes as described in Drainage connections. Install the trench drain with the shower screen located vertically above it.

Unenclosed showers

Requirement: Extend membrane at least 1500 mm into the room from the shower rose outlet on the wall.

Taps and spouts

Requirement: Waterproof penetrations for taps and spouts with proprietary flange systems or a sealant.

Provision for servicing: Install taps in a manner that allows tap washers or ceramic discs to be serviced without damaging the waterproofing seal.

Curing of liquid applied systems

General: To the manufacturer's instructions.

Curing: Allow membrane to fully cure before tiling.

3.3 FLOOD TEST

General

Application: Perform a flood test before the installation of surface finishes.

Moisture measurement method: Conform to AS 1684 Appendix A.

Set-up:

- Measure the wall/floor junction of adjacent spaces and the floor soffit below for dryness.
- Record the result for each area.
- Dam the doorway(s) and seal floor wastes and drainage outlets to allow 50 mm water level.
- Fill space with clean water and leave overnight.

Evaluation:

- Make a visual inspection of the wall/floor junction of adjacent spaces and of the floor soffit below for obvious water or moisture.
- Test the same areas for dryness and compare the results to the measurements taken before flooding.

Compliance:

- Evidence of water from the visual test: Failure.
- No visual evidence of water: Proceed with moisture measurements.
- Test results indicating an increase in moisture before and after flooding: Failure.

Records:

- Submit records of all flood tests.

3.4 COMPLETION

Protection:

General: Keep traffic off membrane surfaces until bonding has set or for 24 hours after laying, whichever period is the longer.

Reinstatement: Repair or replace faulty or damaged work.

Warranties

Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and the applicator.

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the supplier.

4 SELECTIONS

4.1 SYSTEMS

Property	All Wet areas Floors and Showers
Proprietary system	Proprietary system Parchem Emse-Proof 680 or equally an approved product.

Property	All Wet areas Floors and Showers
Material type	Material type Water based, fast drying urethane modified waterproofing membrane
Priming	Priming In accordance with manufacturers current Emer-Proof 680 technical data sheet or equally an approved product.
Number of coats	Number of coats 3
Reinforcement	Reinforcement In accordance with manufacturers current Emer-Proof 680 technical data sheet
Method of application	In accordance with manufacturers current Emer-Proof 680 technical data sheet
In accordance with manufacturers current Emer-Proof 680 technical data sheet	In accordance with manufacturers current Emer-Proof 680 technical data sheet.
Dry film thickness	In accordance with manufacturers current Emer-Proof 680 technical data sheet.

0631B CERAMIC TILING

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide tiling systems to walls, floors and other substrates as documented.

Performance

Requirements:

- Consistent in colour and finish.
- Firmly bonded to substrates for the expected life of the installation.
- Set out with joints accurately aligned in both directions and wall tiling joints level and plumb.
- Direct all water flowing from supply points to drainage outlets without leakage to the substrate or adjacent areas.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.3 STANDARDS

Tiling

General: Conform to the documented recommendations of those parts of AS 3958.1 which are referenced in this work section.

Slip resistance

Classification: To AS 4586.

1.4 TOLERANCES

Completed tiling

Standard: To AS 3958.1 clause 5.4.6.

1.5 SUBMISSIONS

Samples

General: Submit labelled samples of tiles, including fittings, accessories, grout and sealants, illustrating the range of variation in colour and finish.

Sample panels: Prepare a sample panel of each type of tiling system as follows:

- Size: $> 2 \text{ m}^2$.
- Include samples of junction details and trim.
- Preserve the panel until related work is complete.

Tests

Type tests: Submit results, as follows:

- Slip resistance of tiles.

Site tests: Submit results, as follows:

- Slip resistance test of completed installation.
- Impact sound insulation.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Substrate immediately before tiling.
- Trial set-outs before execution.
- Control joints before sealing and grouting.

- Grout and sealant colours before application.

2 PRODUCTS

2.1 GENERAL

Marking

Identification: Marked to show the following:

- Manufacturer's identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.
- Material composition and characteristics such as volatility, flash point, light fastness, colour and pattern.

system.

2.2 TILES AND ACCESSORIES

Tiles

Standard: To AS ISO 13006.

Tactile ground surface indicators: To AS/NZS 1428.4.1.

Coves, nosings and skirtings: Provide matching stop-end and internal and external angle tiles moulded for that purpose.

Exposed edges: Purpose-made border tiles with the exposed edge (whether round, square or cushion) glazed to match the tile face. If such tiles are not available, mitre tiles on external corners.

Accessories

General: Provide tile accessories which match the composition, colour and finish of the surrounding tiles.

2.3 ADHESIVES

General

Standard: To AS ISO 13007.1.

Type

General: Provide adhesives compatible with the materials and surfaces to be adhered, and as documented in the Wall tiling schedule and to the Floor tiling schedule.

Prohibited uses: Do not provide the following combinations:

- Cement-based adhesives on wood, metal, painted or glazed surfaces, gypsum-based plaster.
- Organic solvent based adhesives on painted surfaces.
- Organic PVC-based adhesives and organic natural rubber latex adhesives in damp or wet conditions.
- PVA (polyvinyl acetate) based adhesives in wet areas or externally.

2.4 MORTAR

Materials

Cement type to AS 3672: GP.

- White cement: Iron salts content not more than 1%.
- Off-white cement: Iron salts content not more than 2.5%.

Lime: To AS 1672.1.

Sand: Fine aggregate with a low clay content selected for grading, sharp and free from efflorescing salts.

Measurement of volume: Measure binders and sand by volume using buckets or boxes. Do not allow sand to bulk by absorption of water.

Bedding mortar

Mix proportion (cement:sand), by volume: Select proportions from the range 1:3 to 1:4 for satisfactory adhesion. Provide minimum water.

Terracotta tiles: Use proprietary polymer modified mortar.

Mixing: To AS 3958.1 clause 2.15.

Water

General: Clean and free from any deleterious matter.

2.5 GROUT

Type

Cement based proprietary grout: Mix with water. Fine sand may be added as a filler in wider joints.

Terracotta tiles: Use proprietary polymer modified grout.

General purpose cement based grout: Mix with fine sand. Provide minimum water consistent with workability.

Mix proportions (cement:sand), by volume:

- For joints ≤ 3 mm: 1:2.
- For joints > 3 mm: 1:3.

Pigments

Pigments for coloured grout: Provide colourfast fillers compatible with the grout material. For cement-based grouts, provide lime proof natural or synthetic metallic oxides compatible with cement.

2.6 CONTROL JOINTS

Control joint materials

General: As documented in the Control joint schedule.

Control joint strip: A proprietary expansion joint consisting of a neoprene filler sandwiched between plates with lugs or ribs for mechanical keying. Set flush with the finished surface.

Proprietary slide plate divider strip: An arrangement of interlocking metal plates grouted into pockets formed in the concrete joint edges.

Sealant: One-part self-levelling non-hardening mould resistant, silicone or polyurethane sealant applied over a backing rod. Finish flush with the finished surface.

- Floors: Trafficable, shore hardness greater than 35.

Backing rod: Compressible closed cell polyethylene foam with a bond-breaking surface.

3 EXECUTION

3.1 SUBSTRATES

Drying and shrinkage

General: Before tiling, allow at least the following times to elapse (for initial drying out and shrinkage) for these substrates:

- Concrete slabs: 42 days.
- Concrete blockwork: 28 days.
- Toppings on slabs and rendering on brick or blockwork: A further 21 days.
- Rendering on swimming pool shell: A further 28 days minimum.

3.2 PREPARATION

Standard

Preparation: To AS 3958.1 Section 4.

Ambient temperature

General: If the ambient temperature is less than 5°C or greater than 35°C, do not lay tiles.

Substrates without wet area membranes

General: Conform to the following:

- Clean off of any deposit or finish which may impair adhesion or location of tiles.
- If framed or discontinuous, support members are in full lengths without splicing.

- If solid or continuous:
 - . Remove excessive projections.
 - . Fill voids and hollows greater than 10 mm with abrupt edges with a cement/sand mix not stronger than the substrate or weaker than the bedding.
 - . Fill depressions less than 10 mm with a latex modified cementitious product and eliminate feathering by scabbling the edges.

Absorbent substrates: If suction is excessive, control it by dampening but avoid over-wetting and do not apply mortar bedding to substrates showing surface moisture.

Dense concrete: If not sufficiently rough to provide a mechanical key, roughen by scabbling or the like to remove 3 mm of the surface and expose the aggregate; then apply a bonding treatment.

Substrates with wet area membranes

General: Make sure substrates are as follows:

- Clean and free of any deposit or finish which may impair adhesion or location of tiles.
- Compatible with all components of the floor system.

3.3 TILING GENERALLY

Sequence

General: Confirm alignment prior to proceeding with installation.

Cutting and laying

Cutting: Cut tiles neatly to fit around fixtures and fittings and at margins where necessary. Drill holes without damaging tile faces. Cut recesses for fittings such as soap holders. Rub edges smooth without chipping.

Laying: Return tiles into slits, reveals and openings. Butt up to returns, frames, fittings, and other finishes. Strike and point up beds where exposed. Remove tile spacers before grouting.

Variations

General: Distribute variations in hue, colour, or pattern uniformly, by mixing tiles or tile batches before laying.

Protection

Floor tiles: Keep traffic off floor tiles until the bedding has set and attained its working strength.

Cleaning: Keep the work clean as it proceeds and protect finished work from damage.

Bath ventilation

General: Ventilate the space below fully enclosed baths with at least 2 vermin proof ventilating tiles.

3.4 SETTING OUT

Tile joints

Joint widths: Set out tiles to give uniform joint widths within the following limits:

- Floors:
 - . Dry pressed tiles: 3 mm.
 - . Extruded tiles: 6 mm.
 - . Vitrified: 3 to 5 mm.
 - . Quarry tiles: 6 to 12 mm.
 - . Chemical resistant epoxy jointed tiling: 5 to 6 mm.
- Large and/or irregular floor tiles: 6 to 12 mm.
- Mounted mosaics: To match mounting pattern.
- Walls:
 - . Dry pressed tile: 1.5 mm.
 - . Extruded tile: 6 mm.

Joint alignment: Set out tiling with joints accurately aligned in both directions and wall tiling joints level and plumb.

Joint position: Set out tiles from the centre of the floor or wall to be tiled.

Margins

General: Provide whole or purpose-made tiles at margins where practicable, otherwise, set out to give equal margins of cut tiles. If margins less than half a tile width are unavoidable, locate the cut tiles where they are least conspicuous.

Fixtures

General: If possible position tiles so that holes for fixtures and other penetrations occur at the intersection of horizontal and vertical joints or on the centre lines of tiles. Continue tiling fully behind fixtures which are not built in to the tiling surface. Before tiling make sure that fixtures interrupting the tile surfaces are accurately positioned in their designed or optimum locations relative to the tile layout.

3.5 FALLS AND LEVELS

Grading

General: Grade floor tiling to even and correct falls to floor wastes and elsewhere as required. Make level junctions with walls. Where falls are not required, lay level.

Fall, general: 1:100 minimum.

Fall, in shower areas: 1:60 minimum.

Change of finish: Maintain finished floor level across changes of floor finish including carpet.

3.6 BEDDING

Standard

Cement mortar: To AS 3958.1 clause 5.5.

Adhesive: To AS 3958.1 clause 5.6.

Preparation of tiles

Adhesive bedding: Fix tiles dry; do not soak.

Mortar bedding: Soak porous tiles in water for half an hour and then drain until the surface water has disappeared.

Terracotta tiles: Use pre-sealed tiles or apply a breathable sealer and lay dry. If a final sealed finish is selected, use a compatible laying sealer.

Bedding

General: Use bedding methods and materials which are appropriate to the tile, the substrate, the conditions of service, and which leave the tile firmly and solidly bedded in the bedding material and adhered to the substrate. Form falls integral with the substrate.

Thin adhesive beds

General: Provide only if the substrate deviation is less than 3 mm when tested with a 3 m straight edge. Cover the entire tile back with adhesive when the tile is bedded.

Thickness: 1.5 to 3 mm.

Thick adhesive beds

General: Provide on substrates with deviations up to 6 mm when tested with a 3 m straight edge, and with tiles having deep keys or frogs.

Nominal thickness: 6 mm.

Adhesive bedding application

General: Apply adhesive by notched trowel to walls and floors and direct to tiles if required, to provide evenly distributed coverage after laying as follows:

- Domestic internal walls: > 65%.
- Domestic internal floors: > 80%.
- Other wall and floors: > 90%.
- Wet areas and bench tops: 100%.

Pattern of distribution of adhesive: To the recommendations of AS 3958.1 clause 5.6.4.3. Verify by examining one tile in ten as work proceeds.

Wall tile spacers: Do not use spacer types that inhibit the distribution of adhesive.

Curing: Allow the adhesive to cure for the period nominated by the manufacturer before grouting or allowing foot traffic.

Mortar beds

For floor tiles: Either lightly dust the screeded bed surface with dry cement and trowel level until the cement is damp, or spread a thin slurry of neat cement, or cement-based thin bed adhesive, on to the tile back. Do not use mortar after initial set has occurred.

- Nominal thickness: 20 to 40mm.

Thick reinforced beds: Place mortar bed in two layers, and incorporate the mesh reinforcement in the first layer.

3.7 CONTROL OF MOVEMENT

General

Requirement: Provide control joints carried through the tile and the bedding to the recommendations of AS 3868.1 clause 5.4.5 and as follows:

- Floor location:
 - . Over structural control joints.
 - . To divide complex room plans into rectangles.
 - . Around the perimeter of the floor.
 - . At junctions between different substrates.
 - . To divide large tiled areas into bays.
 - . At abutments with the building structural frame and over supporting walls or beams where flexing of the substrate is anticipated.
- Wall location:
 - . Over structural control joints.
 - . At junctions with different substrate materials when the tiling is continuous.
 - . At vertical corners in shower compartments.
- Depth of joint: Right through to the substrate.
- Sealant width: 6 to 25mm.
- Depth of elastomeric sealant: One half the joint width, or 6 mm, whichever is the greater.

3.8 GROUTED AND SEALANT JOINTS

Grouted joints

General: Commence grouting as soon as practicable after bedding has set. Clean out joints as necessary before grouting.

Face-grouting: Fill the joints solid and tool flush. Clean off surplus grout. Wash down when the grout has set. When grout is dry, polish the tiled surface with grout film remover and a clean cloth.

Edges of tiles: Grout exposed edge joints.

Epoxy grouted joints: Make sure tile edge surfaces are free of extraneous matter such as cement films or wax, before grouting.

Mosaic tiles

Grouting mosaics: If paper faced mosaics are to be bedded in cement mortar, pre-grout the sheeted mosaics from the back before fixing. After fixing, rub grout into the surface of the joints to fill any voids left from pre-grouting. Clean off surplus grout. When grout has set, wash down. If necessary, use a proprietary cement remover.

Sealant joints

General: Provide joints filled with sealant and finished flush with the tile surface as follows:

- Where tiling is cut around sanitary fixtures.
- At internal corners of walls in showers.
- Around fixtures interrupting the tile surface, for example pipes, brackets, bolts and ribs.
- At junctions with elements such as window and door frames and built-in cupboards.

Material: Anti-fungal modified silicone.

Width: 5mm.

Depth: Equal to the tile thickness.

3.9 JOINT ACCESSORIES

Floor finish dividers

General: Finish tiled floors at junctions with differing floor finishes with a corrosion-resistant metal dividing strip fixed to the substrate using mechanical fixings, with top edge flush with the finished floor. If changes of floor finish occur at doorways, make the junction directly below the closed door. Grout up underneath to provide continuous support.

Stepping: Less than 5 mm.

Adjustments

Requirement: Check that the height of the floor finish divider is sufficient for the topping and tile thickness. Adjust as required with a matching flat bar adhesive fixed to the divider angle.

Weather bars

General: Provide a corrosion-resistant metal weather bar under hinged external doors. Locate under the centres of closed doors.

3.10 COMPLETION

Spare tiles

General: Supply spare matching tiles and accessories of each type for future replacement purposes. Store the spare materials on site.

Quantity: At least 1% of the quantity installed.

Storage location: As directed by Client.

Cleaning

General: Clean tiled surfaces using an appropriate tile cleaning agent, and polish.

Operation and maintenance manuals

General: Submit a manual describing care and maintenance of the tiling, including procedures for maintaining the slip-resistance classification stating the expected life of the slip-resistance classification.

6 PREPARED SELECTIONS (Contractor to nominate alternative selections)

6.1 CERAMIC

Designation	Wall Tiles (Pitcherette Squared)	Wall Tiles (All Flat Areas)	Floor Tiles (All Areas)	Cut Slabbing Tiles	Floor Tiles (At Flat Areas)
Product	Make tiles or equally an approved product.				
Colour	White Gloss Porcelain	White Gloss Porcelain	Embossed – Light Grey Mosaic – 60x60 or Similar Custom Edge	Embossed – Light Grey Mosaic – 60x60 or Similar Custom Edge	Embossed – Light Grey Mosaic – 60x60 or Similar Custom Edge
Size	200 x 300 x 10mm	200 x 300 x 10mm	600 x 600 x 10mm	200 x 300 x 10mm cut tile	200 x 300 x 10mm
Finish/Pattern	Shark	Shark	Shark	Shark	Shark
Glaze: Polished or Matte or equally approved.					
Tile	Matte GRP	Matte GRP	Matte GRP	Matte GRP	Matte GRP
Colour	White	White	Grey	Grey	Grey
Adhesive					
Type	Use White GRP High Performance Ceramic Tile Adhesive, typical to all tiles or equally an approved product.				
Tools					
External corners	11A Aluminium Square Edge or Similar, Matt Silver Finish Height to suit selected tile				
Internal corners	11A Aluminium Square Edge or Similar, Matt Silver Finish Height to suit selected tile				
Top Tiles	11A Aluminium Round Edge or Similar, Matt Silver Finish Height to suit selected tile				
Skewered joints	11A Flangeless Aluminium Minuslip Joint or Similar Black oxide, matt grey Height to suit selected tile				

0671P PAINTING

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide coating systems to substrates, as documented. Equally approved products to specified products will be considered as alternatives.

Performance

Requirement: Provide coating systems as follows:

- Consistent in colour, gloss level, texture and dry film thickness.
- Free of runs, sags, blisters, or other discontinuities.
- Paint systems which are fully opaque or at the documented level of opacity.
- Clear finishes at the level of transparency consistent with the product.
- Fully adhered.
- Resistant to environmental degradation within the **manufacturer's** stated life span.

1.2 COMPANY CONTACTS

1.3 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.4 STANDARDS

Painting

General: To the recommendations of those parts of AS/NZS 2311 referenced in this work section.

1.5 MANUFACTURER'S DOCUMENTS

Technical manuals

Product Guide:

Duspec Product Data Sheets, SDS, paint system selection:

1.6 INTERPRETATION

Abbreviations

General: For the purposes of this work section the following abbreviations apply:

- ASU: Acrylic sealer undercoat multipurpose combo product.
- DFT: Dry film thickness.
- OFC: Off form concrete.
- PDS: Product data sheet.
- PRN: Paint reference number.
- PSU: Primer sealer undercoat multipurpose combo product.
- WFT: Wet film thickness.

Definitions

General: For the purposes of this work section the definitions in AS/NZS 2310 and the following apply:

- Gloss: The optical property of a surface, characterized by its ability to reflect light specularly.

- Gloss unit: Numerical value for the amount of specular reflection relative to that of a standard surface under the same geometric conditions.
- Levels of gloss finish: When the specular direction is 60 degrees, surfaces with the following specular gloss reading is defined as follows:
 - . Full gloss: Over 85 gloss units.
 - . Gloss: Between 60 and 85 gloss units.
 - . Semi-gloss: Between 20 and 50 gloss units.
 - . Low gloss (low sheen): Between 5 and 20 gloss units.
 - . Flat finish (matt): Up to 5 gloss units.
- Opacity: The ability of a paint or textured and membrane coating to obliterate the colour difference of a substrate.
- Paint or coating system: A product in liquid form, which when applied to a surface, forms a dry film having protective, decorative or other specific technical properties.
- Primer, prime coat: The first coat of a painting system that helps bind subsequent coats to the substrate and which may inhibit its deterioration.
- Sealer: A product used to seal substrates to prevent the following:
 - . Materials from bleeding through to the surface.
 - . Reaction of the substrate with incompatible top coats.
 - . Undue absorption of the following coat into the substrate.
- Substrate: The surface to which a material or product is applied.
- Undercoat: An intermediate coat formulated to prepare a primed surface or other prepared surface for the finishing coat.

1.7 SUBMISSIONS

Warranties

Requirement: Submit the coating manufacturer's warranties as follows:

- [complete/delete]

Material warranty: Submit the manufacturer's material warranty as follows:

- Extent: Paintwork generally.
- Terms: Paint systems are suitable for their intended use.
- Warranty period: As defined by the manufacturer.

Material performance warranty: Submit an alternative performance warranty as follows:

- Extent: [complete/delete]
- Terms: Submit the performance criteria as defined by the manufacturer.
- Measure: As defined by the manufacturer.
- Warranty period: As defined by the manufacturer.

Timing: Before the application of the paint system.

1.8 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Painting stages:
 - . Completion of surface preparation.
 - . After application of final coat.
- Clear finishing stages:
 - . Before surface preparation of timber.
 - . Completion of surface preparation.
 - . After application of final coat.

2 PRODUCTS

2.1 GENERAL

Product substitution

Other products: Conform to PRODUCTS, GENERAL, Substitutions in the 0171 General requirements worksection.

Storage and handling

General: Store materials not in use in tightly covered containers in well-ventilated areas with temperatures maintained at the manufacturer's recommendations.

Delivery: Deliver paints to the site in the manufacturer's labelled and unopened containers.

Marking

Identification: Marked to show the following:

- Manufacturer's identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.
- Material composition and characteristics such as volatility, flash point, light fastness, colour and pattern.

2.2 PAINTING MATERIALS

Combinations

General: Do not combine paints from different manufacturers in a paint system. Paint products and coating systems have been selected and specified for this project. Any unauthorised product substitution will void the warranties.

Clear timber finish systems: Provide only the combinations of putty, stain and sealer recommended by the manufacturer of the top coats.

Tinting

General: Provide only products which are colour tinted by the manufacturer or supplier.

Toxic ingredients

General: To the Poisons Standard (including SUSMP 11) Part 2 Section 7.

Standards

Paint types: Conform to the Australian Standard referenced in the OCP paint type reference table.

paint type reference table legend

Key:

ASU = Acrylic Sealer/Undercoat.

NE = No Equivalent.

PSU = Primer/Sealer/Undercoat.

Low VOC products are noted in the Table.

^A Use is discouraged in favour of water based paints because of environmental concerns.

^B These paints have either limited availability or low requirement in the Building Industry.

DuluxGroup/Dulux paint type reference table used as reference only.

Paint type	DuluxGroup/Dulux material description	Dulux POS No.	AS/NZS 2311PRN (Table 4.2)	Standard
Low gloss latex: exterior.	Dulux Weathershield Low Sheen Acrylic	000053	87b	AS 3730.8

Paint type	DuluxGroup/Dulux material description	Dulux POS No.	AS/NZS 2311PRN (Table 4.2)	Standard
Low gloss latex, interior	Dulux Wash&Wear Low Sheen Acrylic (low VOC) Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen (low VOC)	DD02070 DD02074	B7a	AS 3730.3
Metal primer for zinc-coated surfaces, latex	Dulux Professional Galvanised Iron Primer (water based, low VOC)	DD0156	B12a	AS 3730.15
Concrete and masonry sealer	Dulux Sealer Binder Dulux Acratex Acraprime 501/2 Berger Gold Label Acrylic Block Filler	DD0074 DA0442 DD0217	B15	AS 3730.22

3 EXECUTION

3.1 PREPARATION

Standards

General: To AS/NZS 2311 Sections 3.

Order of work

Other trades: Before painting, complete the work of other trades as far as practicable within the area to be painted, except for the installation of fittings, floor sanding and laying flooring materials.

Clear finishes: Complete clear timber finishes before commencing opaque paint finishes in the same area.

Protection

General: Before painting, clean the area and protect it from dust contamination. Use drop sheets and masking agents to protect surfaces, including finished surfaces and adjacent finishes, during painting.

Fixtures and furniture: Remove door furniture, switch plates, light fittings and other fixtures before painting, and conform to the following:

- Labelling and storage: Attach labels or mark fixtures using a non-permanent method, identifying location and refixing instructions, if required. Store and protect against damage.

Difficult to remove fixtures: Where removal is impractical or difficult, apply surface protection before substrate preparation and painting.

Wet paint warning

Notices: Place in a conspicuous location and do not remove until the paint is dry.

Substrate preparation – generally

General: Prepare substrates to receive the painting systems in conformance with AS/NZS 2311 and the paint manufacturer's recommendations.

Cleaning: Clean down the substrate surface. Do not cause damage to the substrate or the surroundings.

Filling: Fill cracks and holes with fillers, sealants, putties or grouting cements as appropriate for the finishing system and substrate, and sand smooth.

- Clear finish: Provide filler tinted to match the substrate.

Clear timber finish systems: Prepare the surface so that its attributes will show through the clear finish without blemishes, using methods including the following:

- Removal of bruises.

- Removal of discolorations, including staining by oil, grease and nail heads.
- Bleaching where necessary to match the timber colour sample.
- Puttying.
- Fine sanding, with the last abrasive no coarser than 220 grit, so that there are no scratches across the grain.

Treated surfaces: If surfaces have been treated with preservatives or fire retardants, make sure coating is compatible with the treatment and does not adversely affect its performance.

Iron and steel: Remove weld spatter, slag, burrs, or any other objectionable surface irregularities and radius all edges to a minimum of 2 mm. Degrease by solvent or alkaline cleaning.

Iron and steel blast cleaning: To AS 1627.9 and to the class specified in the specified protective treatment. Provide a surface roughness or profile appropriate for the specified treatment. Where steelwork to be abrasive cleaned includes irregular shapes allow for special equipment to achieve required abrasive cleaning.

Structural steel: All exposed fixings including bolts, screws and the like, are to be painted to match adjacent steelwork paint system.

Concrete and masonry: Before application to very smooth concrete, brick or masonry, either acid etch, mechanically grind or abrasive track blast the surface as appropriate to provide a suitable key for the subsequently applied coating and to remove balance. Remove loose friable matter before filling surface discontinuities.

Set plaster surfaces: Do not apply solvent borne paint or other impervious coatings if the moisture content at the surface, tested with a moisture meter, exceeds 12%.

3.2 PAINTING

Standard

General: To AS/NZS 2311 Section 6.

Light levels

General: During preparation of surfaces, painting and inspection, maintain light levels such that the luminance (photometric brightness) of the surface is equal to the specified permanent artificial illumination conditions or 400 lux, whichever is the greater.

Substrate moisture content

Requirement: Use a moisture meter to demonstrate that the moisture content of the substrate is at or below the recommended maximum level for the type of paint and the substrate material.

Paint application

General: Apply the first coat immediately after substrate preparation and before contamination of the substrate can occur. Apply subsequent coats after the manufacturer's recommended drying period has elapsed.

Painting conditions

General: Unless the paint is recommended for such conditions, do not paint under the following conditions:

- Dusty conditions.
- Relative humidity: > 85%.
- Surface temperature: < 10°C or > 35°C.

Priming before fixing

General: Apply one coat of wood primer, and 2 coats to end grain, to the back of the following before fixing in position:

- External fascia boards.
- Timber door and window frames.
- Bottoms of external doors.
- Associated trims and glazing beads.
- Timber board cladding.

Sanding

Clear finishes: Sand the sealer using abrasives no coarser than 320 grit without cutting through the colour. Take special care with round surfaces and edges.

Repair

Requirement: Clean off marks, paint spots and stains progressively and restore damaged surfaces to their original condition.

Maintenance painting: To AS/NZS 2311 Section 8.

Repair of galvanizing

Cleaning: For galvanized surfaces which have been subsequently welded, power tool grind to remove all surface contaminants, including rust and weld spatter. Prime affected area immediately after cleaning.

Primer: Type 2 organic zinc-rich coating for the protection of steel to AS/NZS 3750.9.

Tinting

General: Tint each coat of an opaque coating system so that each has a noticeably different tint from the preceding coat where possible, except for top coats in systems with more than one top coat.

Services

General: Paint all new services and equipment, including those in plant rooms, if not embedded, except chromium, anodized aluminium, GRP, PVC-U, stainless steel, non-metallic flexible materials and normally lubricated machined surfaces.

Proprietary items: Repaint only if damaged.

Windows

Operation: Make sure opening windows function correctly before and after painting.

Doors

Drying: Maintain door leaf in the open position during drying. Do not allow door hardware or accessories to damage the door finish during the drying process.

Exclusions

Exclude the following surfaces from paint systems (unless specifically requested):

- Flexible duct connections, rubber hoses and mountings and other non metallic flexible fittings.
- Wire rope and machined surfaces.
- Metals plated or specially finished for appearance, bronze, brass, copper and stainless steel (except as specified in the Pipe Identification clause of the Services work sections).
- Aluminium frames.
- Prefinished aluminium frames to windows and doors, and trim.
- Metal floor duct covers.
- Raised access floors.
- Floors.
- Fair faced brickwork, blockwork, stonework, artificial stone and exposed aggregates.
- Sprayed vermiculite.
- Floors, paving, roads unless otherwise specified.
- Timber roof structure.
- Concealed timber roof structure.
- Timber ceiling and eaves lining.
- Exterior timber sheeting.
- Exterior timber stairs and decking.
- Plastic finishes generally
- Inside of service ducts, heat exchangers, pipes and valves.
- Shower seats, store shelving, work benches.
- Those parts of timber fixtures, such as insides of cupboards, not visible when doors are closed, unless otherwise specified. Insides of bathroom cabinets are not excluded and shall be painted.
- Self finished surface such as glass and plastic laminates.
- Door hardware, including hinges.

3.3 COMPLETION

General

Protection and masking: Remove masking and protection coverings before paint has dried.

Cleaning: On completion of painting, remove splatters by washing, scraping or other methods which do not scratch or damage adjacent finished surfaces.

Reinstatement: Repair, replace or refinish any damage, including works of other trades. Touch up new damaged decorative paintwork or misses only with the paint batch used in the original application.

Removed fixtures: Refix undamaged fixture in the original location, make sure they are properly fitted and in proper working order.

Disposal of paint and waste materials:

Requirement: Conform to requirements of the local government authority.

4 SELECTIONS

4.1 PAINTING SCHEDULES GENERALLY

Paint system schedules

Requirement: Apply paint systems as documented in the Interior painting schedule and the Exterior painting schedule.

General: Apply the paint system nominated for each substrate to the referenced manufacturer's Product Data Sheets (PDS) and Spec Sheets and include:

- The number and order of coats.
- The paint type for each coat.

Additional coats: Apply if necessary to:

- prepare porous or reactive substrates with prime or seal coats consistent with the manufacturer's recommendations;
- achieve the total film thickness or texture specified; or
- achieve a satisfactory opacity, in the specified or required colour.

Painting systems

Standards: The scheduled DuluxGroup/Dulux paint systems override AS/NZS 2311 as follows:

- New unpainted interior surfaces: To AS/NZS 2311 Table 5.1.
- New unpainted exterior surfaces: To AS/NZS 2311 Table 5.2.

Paint Reference Number (PRN): The number in brackets against the individual product refers to the Paint Ref. No. (PRN) listed in the DuluxGroup/Dulux paint type reference table (See PRODUCTS) and AS/NZS 2311 Appendix D.

4.2 INTERIOR PAINTING SCHEDULE

Colour selection to be confirmed prior to Construction. Allow for Complete range of Dulux standard colours or equally approved. The paint system below can be substituted for an equally approved product.

Contractor must submit specifications and demonstrate how the alternative paint system matches or exceeds the specification below.

Flat and matt latex: Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Internal Plaster Board ceilings:	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear Matt	Dulux Wash&Wear Matt	SD05662
Plasterboard (low VOC system)				
Internal Plaster Board ceilings:	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear Matt	Dulux Wash&Wear Matt	SD06055

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Fibre cement products (low VOC system)				
Timber Doors, Door and window frames,	Dulux Professional Acrylic Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 9246

Low gloss latex (mould resistant) – Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Concrete blockwork (low VOC system)	Berger Gold Label Acrylic Block Filler	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	SD 2741

4.3 EXTERIOR PAINTING SCHEDULES

Low gloss latex – Exterior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Fibre cement products	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 1333
Timber and veneers (incl. exposed verandah beams)	Dulux Professional Acrylic Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 9246
Concrete blockwork	Berger Gold Label Acrylic Blockfiller	Dulux Weathershield Low Sheen Acrylic	Dulux Weathershield Low Sheen Acrylic	SD 1555
HD Galvanized steel or zinc-primed steel	Dulux Professional Galvanised Iron Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 07811

0811S SANITARY FIXTURES

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide sanitary fixtures, as documented.

1.2 STANDARDS

General

Design for access and mobility: AS 1428.1 and AS 1428.2.

Authorised products

Standard: Listed in the WaterMark Product Database, unless otherwise required by the network utility operator.

Labeling

Water efficiency labelling: Provide only products conforming to and labelled to the Water Efficiency Labelling Scheme (WELS).

2 PRODUCTS

Products have been listed. Equally approved product will be considered, please refer to the substitution section within the general section of the specification.

3 EXECUTION

Refer to the services drawings for

4 SELECTIONS

Basins schedule

Property	A – All Toilets except for Prison Cell Toilets	B – AWC
Brand	Caroma Concorde 500 or equally an approved product or equally an approved product.	Caroma Concorde 500 or equally an approved product or equally an approved product.
Material	Vitreous China Wall	Vitreous China Wall
Colour	White	White
Bowl size (nominal) (mm)	495	495
Soap recesses	Yes	Yes
Sides	Tile Splash Back	Tile Splash Back
Supports	Concealed fixing	Concealed fixing
Overflow	Yes required	Yes required
Number of tap holes	Centre	Centre
Trap	To suit installation. Concealed behind Full height Pedestal	To suit installation. Concealed behind Full height Pedestal
Location	Centre of Pedestal	Centre of Pedestal

Property	A – All Toilets except for Prison Cell Toilets	B – AWC
Rim height from floor (mm)	865mm min – refer to drawing	865mm min – refer to drawing

WC and Cistern parts schedule

Property	A – Except for Prison Cell Toilets	B – AWC
Brand	Caroma Regal 2 or equally an approved product.	Caroma Care 300 Concorde Suite. Allow for Colour Seat and Backrest (Blue Colour) and Raised Push Buttons or equally an approved product.
Material	Vitreous China	Vitreous China
Colour	White	White
Nominal flush (litres)	4.5/3 Litres	4.5/3 Litres
Water star rating to AS/NZS 6400	4.5/3 litres	4.5/3 litres

Urinal assemblies schedule

Property	A – Except for Prison Cell Toilets
Type	Caroma Interga Urinal or equally an approved product.
Flushing system	Mains Pressure - Refer to Hydraulics
Material	Vitreous China
Supports	Concealed fixing to bracket
Water star rating to AS/NZS 6400	3 Litres

Kitchen Sink

Property	A – All Kitchen & Kitchenettes
Type	Clark Advance 1.75 end Bowl or equally an approved product.
Material	Stainless steel - 316
Accessories	Steel Bask Waste, Advanced Powder Coated Draining Basket and Advanced board and Colander Set
Supports	Concealed fixing to bench top from underneath

0812S TAPWARE

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide tapware, as documented.

1.2 STANDARDS

General

Design for access and mobility: To AS 1428.1 and AS 1428.2

Authorized products

Standard: Listed in the Watermark Product Database, unless otherwise required by the network utility operator.

Labeling

Water efficiency labelling: Provide only products conforming to and labelled to the Water Efficiency Labelling Scheme (WELS).

2 PRODUCTS

Specified product or equally an approved product to suit purposes and installation in conjunction with the approved sanitary fixture.

3 EXECUTION

Install all tapware in accordance with manufacturer's instructions and allow to seal and test all fittings prior to commissioning. Provide warranties on all fixtures as required by the general section of the specification.

4. FLOORING COLLECTION

4.1 FURNISH

Shower and Rest room schedule

Property	A – Bathroom Deck	B – A/R Rest Deck	C – Kitchen Deck	D – External Top of Shower's top
Shelf	Chrome, Double Temp Strip Type four Deck Floor top or equally an approved product.	Chrome One Vape Deck Shelf with Accessible Schrader Lever or equally an approved product.	Chrome One Vape Deck Voted with Accessible Extended Lever or equally an approved product.	Chrome Floor Deck Top 11 5/8" x 11 5/8" Extended or equally an approved product.
Catalogue number or model	11C140 – 15.5" Square Deck	SLV8804-E – 20" x 20" long Deck	SLV88114-E – 20" x 20" long Deck	11C133-F – 20" x 20" long Deck
Finish	Chrome Polished	Chrome Polished	Chrome Polished	Chrome Polished
Deck type	Standard	Standard	Standard	Standard
Flag	Not required	Not required	Not required	Not required
Material installed construction	Yes	Yes	Yes	Yes
Minimum slip value	Yes to be located before Deck	Yes to be located before Deck	Yes to be located before Deck	Yes to be located before Deck
Water test rating	1	1	1	1

Shower room schedule

Property	A – Change room only
Shelf	Chrome Floor Decked Deck with 2" x 2" Chrome Hand Rail Shower and Heavy Duty 20" x 20" Deck or equally an approved product.
Catalogue number or model	11C133-F
Finish	Chrome Polished
Hand shower	Yes with 1.5 l/min flow
Shower Head	2" x 2" Chrome Hand Rail Shower
Material installed construction	Yes
Water test rating	1

0815P BOILING, CHILLED AND FILTERED WATER DISPENSERS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide chilled, boiling, warm and filtered water unit dispensers from Billi complete with options and accessories, as documented. An equally approved product will be considered, please refer to the substitution section within the general's section of the specification.

1.2 COMPANY CONTACTS

1.3 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.
- 0801 Hydraulic systems.

1.4 STANDARDS

General

Water supply: To AS/NZS 3500.1.

Heated water supply: To AS/NZS 3500.4.

Testing of products for use with potable water: To AS/NZS 4020.

Product authorization requirements: To AS 3498.

Design for access and mobility: AS 1428.1 and AS 1428.2.
products

Quality management for manufacture: To AS/NZS ISO 9002. Certificate Number QEC11627.

Beverage dispensers: To ATS 5200.105.

Electrical safety certificate: Test to Victorian Electrical Safety Act 1990 Approval Number CS100600V.

Watermark certificate:

Other authorized products

Standard: For non-BILLI products, provide products listed in the WaterMark Product Database, unless otherwise required by the network utility operator.

Labelling

water systems: Provide water systems rated to the Water Efficiency Labeling Scheme (WELS):

- Quadra Plus: 4 star rated.
- Sahara Plus: 4 star rated.
- KwikWash: 6 star rated.
- Sensor tap: 6 star rated.

Other tapware: Provide only products conforming to and labelled to WELS.

1.5 MANUFACTURER'S DOCUMENTS

Technical manuals

Brochures:

Install and owners' manuals:

1.6 INTERPRETATION

Definitions

For the purpose of this work section, the following definitions apply:

- Ambient water: Potable water at a temperature provided by the cold water piping system, without further heating or cooling.
- Boiling water: Potable water at a temperature at or close to 100°C.
- Chilled water: Potable water at a temperature between 8°C and 15°C.

1.7 SUBMISSIONS

Certification

General: Submit evidence that proposed products are listed in the WaterMark Product Database.

Warranties

General: Submit evidence of warranties for all proposed tapware which clearly defines the warranty period and any conditions.

Requirement: Submit the following:

2 PRODUCTS

2.1 GENERAL

Product substitution

Other products: Conform to PRODUCTS, GENERAL, Substitutions in the 0171 General requirements work section.

2.2 COMBINED BOILING AND CHILLED FILTERED WATER DISPENSING SYSTEMS

General

Requirement: Provide the boiling and chilled under-bench drinking water unit dispensers, including disabled compliant levers and a concealed safety switch, as documented:

BILLI Eco XL Chrome or equally an approved product.

Filters: Provide filters, as documented. Options:

Provide the options, as documented.

Accessories: Provide the accessories, as documented, to suit the documented system and the documented finish.

2.3 OTHER PRODUCTS

Sesalants

General: Use only sesalants that do not support microbial growth.

Colour: To match fixture.

3 EXECUTION

3.1 INSTALLATION

General

Requirement: Install level, plumb and true to line in the required location. Make sure moving parts function freely and without obstruction. Do not modify supplied units.

Manufacturer's recommendations: Install and use tools and templates as recommended by the manufacturer.

Seal: Provide resilient seals between fixtures and back nuts.

Fixing: Provide rigid fixing for dispenser base so that it does not move in normal operation.

products: Conform to the **Install and owners' manuals**.

Location

General: Locate to dimensions, as documented.

Cutting and fitting

General: If it is necessary to cut and/or fit substrate to install an item, carry out before the surface is finished or painted. Remove items when required for painting and protect until reinstalled. Cap or plug the open ends of pipes. Reinstall items when painting and finishing is complete.

3.2 COMPLETION

Adjustment

General: Inspect and adjust dispensers for correct and smooth operation. If adjustment does not rectify incorrect or defective operation, replace units.

Damage

General: Inspect all work and replace or repair, to factory condition, damaged or marked fixtures and components.

Foreign matter: Inspect for presence of foreign matter. Remove if found. Replace damaged seals.

Protective coatings

General: On completion of the dispenser installation remove all protective coatings and stickers and clean surfaces. Check and clean debris from traps.

3.3 WARRANTIES

water systems

Period: Provide warranty periods for the dispensing systems (excluding filters) as follows:

- 24 months.

3.4 MAINTENANCE

water systems

Service: Provide maintenance recommendations for the duration of the contract maintenance period. Provide all consumables including, but not limited to, replacement filter cartridges.

4 SELECTIONS

4.1 BILLI SYSTEMS

BILLI water dispenser systems schedule

Property	A – Both Courthouse & Judges Residence' Kitchens
BILLI model	Eco XL Chrome or equally an approved product.
Options	
Finish	Stainless Steel
BILLI font	Required
Dispenser riser	Required
Sink mixer disabled lever	Not Required
Ventilation kit for air cooled systems	Required
Air cooled model	Required
Mixer tap	Required
Dispenser style	Rounded
Filter	5 Micron and Sub Micron Filters
Tundish	Not Required

Property	A – Both Kitchens
Mounting	Bench Mounted, allow for cut-out to Clark sink between 0.75 b

0581B SIGNAGE

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide signage systems, as documented or equally an approved product.

Performance

Requirements: Provide signage as follows:

- Appropriately secured.
- Located within a clear line of vision.
- To contrast with the background.
- With clean, well defined edges or arises, and free from blemishes.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.3 STANDARDS

Signs

Safety signs - design and use: To AS 1319.

Signs and graphics for disability access: AS 1428.1 and AS 1428.2.

2 PRODUCTS

2.1 MATERIALS

Materials standards

Aluminium:

- Plate for engraving: Alloy and temper designation 6063-0.
- For casting: To AS 1874.

Stainless steel: Surface finish designation 4 (general purpose polished).

Plastics:

- PVC-U sheet: Semi-rigid sheet.
- Rigid cellular polystyrene: To AS 1386.3, class V11 for cut-out shapes.

Photoluminescent exit signs: To BCAE4.6(b).

3 EXECUTION

3.1 WORKMANSHIP

Production

General: Form signage and graphic items accurately with clean, well defined edges or arises, free from blemishes.

Engraving to two layer plastic laminate: Engrave lettering to expose the lower laminate.

Engraved and filled: Lettering precision cut and filled colouring material. Clean faces of all filling material.

Casting: Produce shapes free of pits, scale, blow holes or other defects, hand or machine finished if necessary.

Laser cut lettering: Individual vinyl letters with self-adhesive backing.

Printed lettering: Lettering and graphic images screen/digitally printed on.

- Film with self-adhesive backing.
- Acrylic sheet.
- Aluminium plate.
- Stainless steel plate.

Large format digital printing: Lettering and graphic images screen printed film with self-adhesive backing.

Signwriting: Lettering and graphic images hand painted direct to the background by a tradesman with recognized qualifications and demonstrated experience.

Fabricated: Three dimensional, formed as follows:

- Laser cutting from solid material and hand finished as necessary.
- Moulding: Individual plastic hollow three dimensional characters and shapes formed by:
 - Injection moulding.
 - Vacuum forming.
- Built-up individual shapes by fabricating the faces and edges from separate pieces neatly and securely joined.

Installation

General: Install signage and graphic items level and plumb, securely mounted, with concealed theft-resistant fixings.

Self-adhesive signs: Fix free of bubbles and creases.

4 SELECTIONS

4.1 STATUTORY SIGNS

Portable fire extinguishers – location signs

Position	As nominated in AS 2444 clause 3.2 at every installed extinguisher nominated BCA Table E1.6
Message	Prescribed graphic
Letter height (minimum)	16 mm
Sign type	Computer generated adhesive backed vinyl graphic
Compliance	BCA E1.6 AS 2444 clause 3.3 Fire Brigade

Fire blankets

Position	As nominated in AS 2444 clause 6.4 at every blanket location
Message	Prescribed graphic
Letter height (minimum)	
Sign type	Computer generated adhesive backed vinyl graphic
Compliance	BCA E1.6 AS 2444 clauses 6.3, 6.4 and Fig 6.1 Fire Brigade

Non-accessible pedestrian entrance

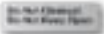
Position	At each non-accessible pedestrian building entrance.
Message	Signage incorporating the international symbol of access to direct a person to the location of the nearest accessible pedestrian entrance

Letter height	AS 1428.2 clause 17, Table 2.
Symbol size	AS 1428.2 clause 16, Table 1.
Sign type	
Compliance	AS 1428.1 BCA D3.6

Position	Sign Message	Type	Size	Image	Manufacturer
Entry Doors	To the Left hand side of the main entry door	Green- Acrylic with encapsulated background colour	2000mm x 1000mm x 3mm		Quella Supplies www.thatlongsupplies.com.au or equally an approved product
Outside reception		White- Acrylic with encapsulated background colour	2000mm x 1000mm x 3mm		Quella Supplies www.thatlongsupplies.com.au or equally an approved product

Gender reception (left and right of entrance)	Indicating location of Accessible Toilet	100mm Acrylic with encapsulated background colour	250mm x 100mm x 3mm		Shale Supplies www.shalewengsupplies.com.au/ or equally an approved product.
Outside AWC Public Toilet	Men Toilet with Accessible Compartment	Acrylic with encapsulated background colour in light blue transition	250mm x 100mm x 3mm		Shale Supplies www.shalewengsupplies.com.au/ or equally an approved product.
Outside Men Public Toilet	Men Toilet with Accessible Compartment	Acrylic with encapsulated background colour	250mm x 100mm x 3mm		Shale Supplies www.shalewengsupplies.com.au/ or equally an approved product.

On Cuboid Door of the Male Ambulant Compartment	Male Ambulant Compartment	Acrylic with encapsulated background colour	200mm x 100mm x 3mm		Shella Supply www.shellasupply.com.au or equally an approved product.
Cuboid Female Public Toilet	Female Toilet with Ambulant Compartment	Acrylic with encapsulated background colour	200mm x 100mm x 3mm		Shella Supply www.shellasupply.com.au or equally an approved product.
On Cuboid Door of the Female Ambulant Compartment	Female Ambulant Compartment	Acrylic with encapsulated background colour	200mm x 100mm x 3mm		Shella Supply www.shellasupply.com.au or equally an approved product.
Non-staff Office entry	Staff Only - (to Not Obstruct or Keep Open)	Acrylic with encapsulated background colour	200mm x 100mm x 3mm		Shella Supply www.shellasupply.com.au or equally an approved product.

					
				 	
Custom Graphic Signs to each of the offices	- Hearing Room - Office - Reading Room - Waiting room	Acrylic with encapsulated background colour	200mm x 100mm x 3mm		Graphic Supplies www.fineartsgroupsigns.com.au/ or equally well approved product.

Where First Aid kit is kept.	NOCA to advise	Adults with encapsulated background colour	200mm x 100mm x 3mm		
	Cleaners Cupboard	Adults with encapsulated background colour	200mm x 100mm x 3mm		Cleaners Cupboard www.bendawangsupplies.com.au/ or equivalent or approved product.

Building Signage

Contractor to allow for 500mm High wall x 500mm deep 30mm Clear Corian slab with mounting frame to be fixed to the main entry of the Building

Unit: MICH to provide

Building Plaque

Contractor to allow for 300mm x 200mm Mahogany Laser Engraved Plaque (glued to a natural timber backing and mounted to the building)

0155P TACTILE INDICATORS AND STAIR NOSINGS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide tactile indicators and edging, as documented at existing floor step locations at the main entry door locations. Whilst the DTAC product has been specified, substitution of an equally approved product will be considered in accordance with the substitution criteria within the general section of the specification.

1.2 COMPANY CONTACTS

DTAC technical contacts

Website: www.dtac.com.au/contact

1.3 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.4 STANDARDS

General

Tactile indicators: To AS/NZS 1428.4.1.

Stair nosing: To AS 1428.1.

1.5 MANUFACTURER'S DOCUMENTS

Technical manuals

Technical data sheets and laying guides: www.dtac.com.au/resources

DTAC Stair & Tread Edging: www.dtac.com.au/product/edging

1.6 SUBMISSIONS

Slip resistance

Tactile indicators and edging: Submit evidence of conformance to AS 4586.

Testing

Luminance contrast Testing: Submit evidence of conformance to AS/NZS 1428.4.1 Appendix E and AS 1428.1 Appendix B.

- 30% contrast between the tread strip and adjoining surface.

Warranties

Tactile indicators and edging: Submit the of DTAC product and installation warranties.

1.7 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the completed substrate ready for tactile indicators and edging installation.

2 PRODUCTS

2.1 GENERAL

Product substitution

Other products: Conform to PRODUCTS, GENERAL, Substitutions in the 0171 General requirements work section.

2.2 DTAC PRODUCTS

Edging products

Material: Extruded aluminium

Finish: Hard anodized.

3 EXECUTION

3.1 EDGING PRODUCTS

Fixing

Substrate: Concrete

Fixing: 3 per tread strip - M4.5 x 50mm long Countersunk Rammed Zinc Plated Dyna bolt

3.2 COMPLETION

Warranties

Conditions: Installation by DTAC or DTAC approved by installer.

Warranty period: 2 years

4 SELECTIONS

4.1 DTAC EDGING

Stair Treads and slab edging

Application: At all floor step locations

Size: 75mm x 3mm thick with 10mm face edging

Colour: Black hard infill

Code: DTAC Urban Edge Mill finished Aluminium profile- DTAC Product code DE075MF or equally an approved product.

<http://www.dtac.com.au/>



CODE: DE075MF

NOTE: 1411 x 75 x 3 (1.33)

Ensure the selected tread insert achieves 30% contrast with the background

0457 EXTERNAL SCREENS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide external screens, as documented.

Performance

Requirements: Conform to the following:

- Plumb, level, straight and true within the building tolerances of the structural system.
- Undamaged and free of surface defects or distortions.
- Fixed or fastened to the building structure.
- Able to resist wind and other actions without vibration or permanent distortion.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

1.3 STANDARDS

General

Aluminium framed sunscreens, awnings and shutters:

- Stress analysis of members: To AS/NZS 1664.1 or AS/NZS 1664.2.

Horizontal screen loadings: To AS/NZS 1170.1 Table 3.2.

Electrically operated external louvres and blinds:

- Drive motors: To AS/NZS 80335.2.97.

Access for maintenance: To AS 1667.

1.4 INTERPRETATION

Abbreviations

General: For the purposes of this work section the following abbreviations apply:

- BMS: Building Management Systems.
- PVC-U: Unplasticized Polyvinylchloride.

Definitions

General: For the purposes of this work section, the following definitions apply:

- Louvres - continuous: Louvres that run continuously past, and are supported by, concealed framing or brackets.
- Louvres - horizontal: Louvres that span between frames stiles, mullions or vertical supports.
- Louvres - vertical: Louvres that span between frame heads and sills, or horizontal supports.
- Membrane (tensioned membrane structures and external screens): A thin and flexible sheet of fabric material.
- Screen: Includes sunscreens, trafficable sunscreens, external louvres and blinds, shutters, awnings and pergolas fixed to building facades or openings to control sunlight and/or provide privacy, to screen plant and equipment, or to provide an architectural feature. It applies to fixed, adjustable, operable and automatically controlled types.
- Tensioned membrane: A thin cloth or sheet that is held in a predetermined 2- or 3-dimensional shape under permanent tension. The shape and the tension are interrelated and designed to safely carry the permanent and imposed loads (such as those resulting from wind actions) in a predictable manner.

1.5 SUBMISSIONS

Operation and maintenance manuals

Requirement: At completion, submit the screen manufacturer's recommendations for operation, care and maintenance.

Samples

General: Submit samples of the following:

- Sections proposed for frame members, louvres, accessories, cover panels and trim.
- Joints made, using proposed techniques.
- Colour samples of prefinished production material (e.g. anodized or organic coated extrusions or sheet, glazing, infill panel material or fabric), each at least 200 x 200 mm, showing the limits of the range of variation in the selected colour, if any, for each component of the screens specified.
- Accessory and hardware items documented descriptively or by performance (i.e. not proprietary items). Include handles, operators, controls, switches, sensors, motors, fixing clips, anchor brackets and attachments, fixings, gaskets and weather seals.

Labelling: Label each sample, giving the brand and product name, manufacturer's code reference, date of manufacture and intended building location.

Sample installations: Install the designated typical screens in their final position incorporating at least one example of each component in the system, including attachments to the structure, flashing, caulking, sealing, infill materials, operating hardware and controls.

Sealant compatibility

Compatibility statements: Submit statements from all parties to the installation that certify the compatibility of sealants with screen components, finishes and all substrates.

Shop drawings

General: Submit shop drawings to a scale that best describes the detail, calculations and specifications conveying the following information:

- Layout of the screen assembly (sectional plans, vertical sections, and elevations of each building face where screens are to be installed).
- Full size sections of typical members including mullions, transoms, subheads, sills, subills, louvres, infill panel material or fabric, beads, bearings, linkages, exposed fixings, sealant beads, glazing gaskets, splice plates, trays and cover strips, with notes specifying the proposed materials.
- Lubrication requirements for adjustable or operable screens.
- Method of assembly, including isometric or axonometric and exploded views of typical framing junctions, showing panel to panel joints (for modular systems).
- Method of installation, including the following:
 - Location and magnitude of reactions to be accommodated by the support structure.
 - Type and location of fasteners and other attachments to be cast or otherwise built into the building structure.
 - Erection tolerances.
 - Accurate locations and full size details of machined slots, keyholes and other penetrations in frame extrusions for fitting and installing the units.
 - Junctions and trim to adjoining surfaces.
 - Caulking and flashing.
 - Locations of visible heads of fasteners.
- Provision for differential vertical or horizontal movements, including the following:
 - Thermal expansion and contraction.
 - Frame deflections.
- Details of motor and operating mechanism enclosures.
- Method of draining the assembly, including details showing the following:
 - Pressure equalised drained joints.
 - Location, number and size of weepholes.
- Connection points to rainwater or stormwater systems.

- Hardware, fittings and accessories including window cleaning restraints and visible heads of fasteners.
- Infill panel stiffening.
- Location and power requirements of motors, sensors and controls.
- Wiring diagrams of control systems and how they connect to BMS.
- Scale drawings and descriptions of prototype external screens.

Subcontractors

General: Submit names and contact details of the proposed manufacturers and, if the manufacturer is not the installer, the installers recommended by the manufacturers.

Warranties

Screens: At completion, submit the **manufacturer's** published product warranties.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Sample assembly.
- Fabricated screen assemblies at the factory ready for delivery to the site.
- Fabricated screen assemblies delivered to the site, before installation.
- Commencement of installation of screen assemblies.
- Completion of installation.

2 PRODUCTS

2.1 MATERIALS GENERALLY

Structural steel

Design and materials: To AS 4100.

Welding: To the AS/NZS 1554 series.

Galvanizing: To AS/NZS 4680.

Cables

Requirement: Preload cables by cyclic loading to achieve a uniform modulus of elasticity and a linear stress/strain relationship within the working range. Use a swaging system to achieve a breaking strength of terminals not lower than the minimum design strength of the cable system.

Materials: Stainless steel type 316 or galvanized steel.

Fabric

Supply: Supply fabric by a single manufacturer as part of a single batch.

Inspection: Check each roll of material for flatness, faults in the woven fabric and the coatings, where present, by visual inspection in directional sunlight at a distance of 4 m and by passing the membrane over a uniformly illuminated surface.

Perimeter reinforcing: Reinforce the perimeter of each with UV stabilised polyester, coated with PVC and incorporating pockets for the tension cables.

2.2 METAL FINISHES

Surface preparation

Standard: To AS 1627 series.

Anodised

Standard: To AS 1231.

Thickness: $\geq$ 15 microns to 20 microns.

Hot-dip galvanizing

Coating mass/thickness minima: To AS/NZS 4680.

2.3 PROPRIETARY SCREENS OR EQUALLY AN APPROVED PRODUCT

General

Requirement: Provide UV Resistant Kynar® panel materials mounted using a 12.5mm Stainless steel tube with proprietary stainless steel hooks at 400 c/s sub frame. Allow for turn tensioning turnbuckles as required to:

- To withstand imposed actions and wind actions for the location without failure or permanent distortion, and without panel flutter.
- To shed water without pooling.

Framing materials

Requirement: Provide frames fabricated from solid or hollow metal sections. Fix to fastener brackets or arms mounted on the face of the building, and brace as necessary with stays, including tensile elements such as wire cables and turnbuckles.

Intermediate fixing

Allow to run hidden supports continuously through the mesh horizontally every 3-6 metres and fix back to the building.

2.4 TIMBER SCREENS (VERTICAL AND HORIZONTAL)

General

Requirement: Provide 200x 50 minimum horizontal and vertical timber screens fixed to sub frames with 3mm x 75mm wide Mild Steel cleat for each bolt fixing. Allow to fix sub frame to primary frame.

The frame and

- To withstand imposed actions and wind actions for the location without failure or permanent distortion, and without panel flutter.
- To shed water without pooling.

3 EXECUTION

3.1 FABRICATION

Aluminium fabrication and construction

Standard: To AS/NZS 1664.1 or AS/NZS 1664.2.

Fasteners

Requirement: Provide fasteners of sufficient strength and quality to perform their required function.

Joints

Requirement: Make accurately fitted tight joints so that neither fasteners nor fixing devices create pressure indentations that are visible on exposed faces. Where heads of fasteners are unavoidably visible, finish them to match the adjacent finished surface.

Protection

Corrosion protection: Provide protection against corrosion which may be caused in metals by products or processes normally employed on a building site or by normal atmospheric or other ambient conditions and by-products including rainwater, potable and non-potable water, airborne salt and airborne pollution.

Durability: Provide materials resistant to exposure to weather and UV radiation so that their colour, surface finish, flexibility and water resistance are maintained.

Temporary measures: Do not use adhesive tape, film or paper, or applied coatings liable to bond to the substrate, when exposed to sunlight or weather, as temporary measures to protect screen components during the course of the works. If temporary measures are used, remove all traces, particularly from contact mating surfaces before joining up.

Operation

Requirement: Provide moving parts which operate freely and smoothly, without vibration, rattling, binding or sticking, and at correct tensions or operating forces. Lubricate if appropriate.

3.2 WELDING

General

Quality: Provide finished welds descaled and free of surface and internal cracks, slag inclusion and porosity. Provide continuous welding unless permanently concealed.

Restrictions: Do not weld as follows:

- On site.
- On finished surfaces.
- Next to a finished surface or glass, unless the adjacent surface is protected from damage.

3.3 INSTALLATION

Installation tolerance

Alignment

- Maximum deviation of any member from its true alignment (plumb, level, or line of slope): 1:1000, up to a maximum of 10 mm in a continuous run of members in one direction.
- Maximum misalignment between adjoining members: 1 mm.

Position

- Maximum deviation of any part from its true position: 10 mm

Marking

Requirement: Before the separate parts of the screens are delivered to the site, provide suitable and sufficient marks or other means for identifying each part, and for showing its correct location and orientation, when installed.

Reference lines and marks

Requirement: Provide on each floor, in agreed locations, accurate perimeter offset reference lines, plumb with corresponding lines on other floors, and height benchmarks.

Cleaning

Requirement: During erection, promptly remove foreign matter from the screens without damage to finishes. Do not use abrasive cleaners or acid.

3.4 COMPLETION

Cleaning

Method: Clean all visible surfaces with soft clean cloths and clean water or approved cleanser, finishing with a clean cloth. Do not use abrasive or alkaline material.

APPENDICES

APPENDICES : CONTAIN EXTRA INFORMATION ON RECOMMENDED SPECILISED BUILDING MATERIALS & EQUIPMENTS (MANUFACTURER'S):-

APPENDIX A - RECOMMENDED CEILING SYSTEM

APPENDIX B - WON-DOOR FOLDING PARTITION

APPENDIX C - COURTROOM FURNITURE & EQUIPMENT

APPENDIX D - HOLDING CELL TECHNICAL INFORMATION (CELL SECURITY LTD CATALOGUE)

FINE FISSURED AND FINE FISSURED HIGH ACOUSTIC



THE FINE FISSURED Square Edge with Track on Pedestal, 24" x 24" is used to get

BENEFITS

- High acoustic performance
- Cost effective ceiling solution
- Reliable, proven performance
- High light reflection factor
- Proven humidity resistant
- Sustainable – design star contribution

APPLICATION AREAS

- Office
- Education
- Healthcare
- Commercial
- Libraries



Inspiring Great Spaces™

Armstrong
CEILING SYSTEMS

FINE FISSURED AND FINE FISSURED HIGH ACOUSTIC



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University of Cambridge
and other subjects



Light Reflection

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Panel Options	SQUARED-UP™	ANGLED™/TILT™	SHY-LO™/TILT™
			
	Fixed Down-Top	Fixed Down-Top	Swivel Down-Top Swivel Down-Top
Free Pivoted			
48" x 24" x 27 1/2"	48" 10000	•	•
50" x 50" x 14 1/2"	40" 1000	48" 1000	48" 10000
50" x 50" x 10 1/2"	48" 1000	48" 1000	•
Free Pivoted High Anodized			
50" x 50" x 20 1/2"	48" 1000	48" 1000	•
50" x 50" x 20 1/2"	48" 1000	48" 1000	•
50" x 50" x 10 1/2"	48" 1000	•	•

^a Fiscal year is indicated. Other years indicate the beginning of the fiscal year, excepted when indicated otherwise.



MR. CAROLINE HANCOCK
J. H. HANCOCK AND HIS FRIENDS



04. 32 Five Hundred Square (20 ft)
 32 Five Hundred sq. ft. (20 ft)
 32 Five Hundred sq. ft. (20 ft)
 32 Five Hundred sq. ft. (20 ft)



Received 20 May 2002; accepted 10 July 2002



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Thermoflex, Inc. 30-0000
 1234 N.W. 12th Street
 Fort Lauderdale, FL 33304



23 Agave/21m Flashed Acoustic 10
24 Agave/21m Flashed Acoustic 10
25 Agave/21m Flashed Acoustic 10
26 Agave/21m Flashed Acoustic 10

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Subject: _____

Each segment of the cable will have a "signature" code that identifies it.

Positional activity: New arrival mortalities

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Zeyli M. et al. / *Microbes & Infection*

"Nuclear" flag: symbols of environmentalism, protesting nuclear power, protest of quality of life and just negative and then negative situation, peace, justice.

Supervision System 4

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1992年 10月 22日 星期二
 1992年 10月 22日 星期二

Transcription of the 28S rRNA gene was analyzed by Northern blotting. Total RNA (10 µg/lane) was separated on 1% agarose formaldehyde gels and transferred to Gene-Screen Plus (NEN, Boston, MA). Blots were probed sequentially with a 32P-labeled cDNA probe for 28S rRNA (100 ng/ml) and a 32P-labeled cDNA probe for 18S rRNA (100 ng/ml). Blots were exposed to a PhosphorImager Screen (Molecular Dynamics, Princeton, NJ) and quantified by PhosphorImager.

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 1 November 2007[illegible]

總編輯
陳國治 (CHEN GUO ZHI)

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Abstract

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Inspiring Great Spaces™

Armstrong
CEILING SYSTEMS



BACKLIT LED PANEL COLOUR CHANGING (CCT)

**Bright uniform light,
fits seamlessly into
any workplace**



Our Backlit LED panels have an incredibly low profile, with a bright, uniform light distribution it is suitable for general illumination in commercial and residential applications.

- Backlit design provides higher efficiency at more than 100 lm/W
- Ideal, low-maintenance solution for offices, schools, retail and healthcare applications
- Lightweight and easy to install
- Easily change colour temperature (CCT) from warm white 3000K, cool white 4000K to bright daylight 6500K
- Designed to fit standard T-Bar settings, Backlit recessed profile fit and surface mount fit
- Long lasting up to 50,000 hours
- Thermal cover with flow & plug, (Total length 1.2 meters)
- Indoor use only
- 3 Year Warranty

APPLICATIONS

- Office & school lighting: office room, meeting room, classroom
- Commercial lighting: shopping mall, super market, outdoor areas
- Other applications: hospital, laboratory, data hall, workshop



BACKLIT LED PANEL COLOUR CHANGING (CCT)

TECHNICAL SPECIFICATIONS

Operating voltage:	24V ~ 250V
Class:	Class A (2)
Voltage:	100V ~ 250V
Lumens:	3000 Total lumens (3000lm) 1800 Total lumens (1800lm) 1800 Total lumens (1700lm)
Colour temperature:	3000K (Warm white) 4000K (Cool white) 6500K (Daylight)
Beam angle:	110 degrees
Colour rendering index:	>80
Power factor:	>0.9
Dimmable:	No
Rated lifetime:	30,000hrs (30000 Average When powered with thermal insulation)
Construction:	Aluminum frame Polycarbonate (PMMA)
Operating temperature:	1K - 35 degrees Celsius
Warranty:	3 year replacement
Standards:	AS/NZS 60930.1 AS/NZS 60930.2

INSTALLATION

Must be installed by a licensed electrician

ACCESSORIES

(sold separately, see 1700x330mm strip)

Recessed Plaster Kit 180000mm

Surface Mount Kit 330000mm



	MODEL	CLOUR	DESCRIPTION	BOX SIZE	GROSS WIDTH	BOX QTY	BARCODE/TUN
RETAIL BOX	3147305	White	Backlit CCT LED Panel 1700x330mm	W1015 x H100 x D140mm	1700mm	1 pc	 8 712345 314730 5
OUTER CTR	3147305	White	Backlit CCT LED Panel 1700x330mm			5 pc	 8 712345 314730 5
RETAIL BOX	3147505	White	Backlit CCT LED Panel 630x600mm	W630 x H600 x D40mm	630mm	1 pc	 8 712345 314750 5
OUTER CTR	3147505	White	Backlit CCT LED Panel 630x600mm			5 pc	 8 712345 314750 5



LED PANEL

1200mm x 600mm COLOUR TEMPERATURE CHANGING

3000K
WARM WHITE

4200K
COOL WHITE

6500K
DAYLIGHT



240V

48W

3000K
4200K
6500K



CR
>80

POWER
FACTOR
0.9



CCT changing between warm white, cool white and day light, the color temperature changing led panel light is controlled by slide switch, which aims at reducing your stock by different color temperature and enables you want to choose suitable color temperature for different applications.

The ultra slim profile fits seamlessly into any work place, providing even light distribution and no shadows.

FEATURES

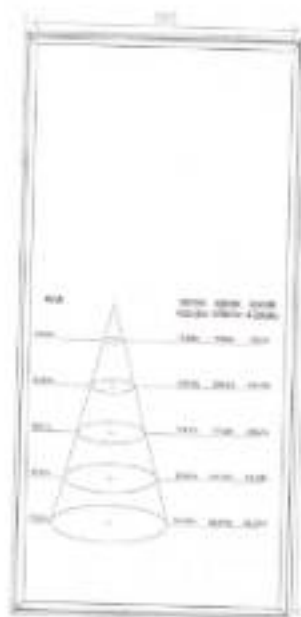
- Edgless design.
- Switchable between Warm White (3000K), Cool White (4200K) & Daylight (6500K).
- Designed to fit standard 18er ceilings.
- Long lasting up to 30,000 hours.
- External driver with free & plug. (Total length 1 meter).
- Indoor use only.
- 3 Year Warranty.

APPLICATION AREAS

- Office & school lighting: office room, meeting room, class room.
- Commercial lighting: shopping mall, super market, service shops.

Other situations: hospital, laboratory, dispatch workshop.

MODEL NO.	VOLTAGE (V)	LENGTH (3000mm)	LENGTH (4000mm)	LENGTH (5000mm)	LIGHT COLOUR	WARRANTY
20436/01	48	4300	4700	4300	WHITE	3 Years or 50,000hrs



SPECIFICATIONS: WON-DOOR DURASOUND (SOUND BARRIER PARTITION STC43)

ACCORDION FOLDING PARTITIONS

PART 1 - GENERAL

1.01 SUMMARY OF WORK

- A. Furnish and install all accordion folding partitions shown on the drawings and specified herein.
- B. All headers, support structures, surrounding insulations, jambs, pocket doors, blocking, architraves and trim shall be furnished and installed by others.
- C. Peripheral leakage of sound through ceiling, floor, other walls, ducts or vents is to be made good by others.

1.02 QUALITY ASSURANCE

- A. Installation shall be carried out by factory trained personnel.
- B. DuraSound model shall have the laboratory sound rating indicated (STC43), when tested in accordance with the requirements of ASTM E-90.

1.03 SUBMITTALS

- A. Specification listed as either Single Parting, Bi-Parting or Rolling Lead Post.
- B. Indicate Clear Opening Width & Clear Opening Height of partitions (height is from underside of header to top of flooring coverings).
- C. Indicate required stack depth — pocket width (if applicable).
- D. Show installation details, layout and any optional electrical requirements.

1.04 DELIVERY, STORAGE AND INSTALLATION

- A. Deliver to job site in manufacturer's original and unopened packaging.

1.05 COORDINATION BY GENERAL CONTRACTOR

- A. Coordinate the efforts of the various trades affected by the work of this section. Assume responsibility for determining the proper location of the Partition Assembly. Fabricate dimensions of each opening on forms provided by manufacturer.
- B. Supervise unloading and handling. Store boxes flat (no more than three high) in a dry area and protect from elements that may damage the materials. Replace any damaged materials at no additional cost to the owner.
- C. **OPTION:** If section 2.02 D is specified, the following paragraph should be included. Permanent power shall be in place for final connection when partitions are installed. Insure access to and proper clearance for motor operators.

1.06 WARRANTY

- A. Materials shall be warranted against defects and workmanship for a period of three (3) years from the date of installation. DuraSound to be installed by factory trained personnel or warranty is void.

PART 2 – PRODUCTS

2.01 MANUFACTURER

- A. Folding partitions shall be DuraSound model as manufactured by Won-Door New Zealand Limited and Won-Door Australia Pty Ltd.

2.02 MATERIALS

- A. **Operation:** Shall be top hung and manually operated (no floor track)
- B. **Construction:** Shall consist of two parallel accordion-type folding partition walls of panels independently suspended from top track. With no pantograph or interconnections except for the Lead Post.
- C. **Panels:** Shall be formed of 115mm wide x 1.6mm thick aluminium, V-grooved and powder coated for added strength. Panels shall be connected by full height extruded vinyl hinges.
- D. **Insulation:** Interior surfaces of both walls of partition panels shall be completely covered with a continuous acoustic blanket of high-density foil-backed fibreglass insulation fastened to each panel with patented stainless-steel spring-loaded clips.
- E. **Suspension & Track System:** Shall consist of two extruded aluminium tracks spaced 152mm apart (or 208mm for motorized operation) on centre of header. Tracks to be attached to the overhead structural support.
- F. **Trolley:** Each panel shall be suspended by a hardened-steel hanger pin and a 21mm diameter nylon-tired ball bearing roller. Each Lead Post shall be suspended by a 12-wheel ball bearing aluminium trolley.
- G. **Lead Post:** Shall be of 3.15mm extruded aluminium and shall be connected to the partition by specially designed aluminium Wing Panels.
- H. **Striker (receiver):** Shall be of 1.9mm extruded aluminium and shall be secured to wall with fasteners by Won-Door. Striker face to be fitted with full height acoustic seal.
- I. **Perimeter Seal:** Shall consist of continuous extruded vinyl sweep strips attached to the top & bottom of the partition. Leading edges of Lead Posts and Striker receiver posts shall be acoustically sealed by extruded vinyl interlocking seals.
- J. **Handle:** Lead Post Handles shall include standard grip-type aluminium handles and sliding latch to affect closure.
Note: LOCK AND KEY mechanism also as specified as OPTION (refer 2.02 M).
- K. **Hanging Weight:** shall be 18kg per m².
- L. **Fixings:** All necessary track and fixing screws are supplied
- M. **OPTION: LOCK AND KEY.** DuraFlex can be specified with a LOCK AND KEY mechanism for added security. Standard specification is for a Latch closure mechanism only.
- N. **OPTION: DURASOUND WITH STABILIZER BAR:** For DuraSound models over 3.4m tall. Shall consist of a top supported, internally mounted diagonal brace connected to the Lead Post for proper alignment during operation and latching. Requires a minimum 368mm wide header (refer manufacturers Technical Details on DuraSound with Stabilizer Bar).
- O. **OPTION: MOTOR OPERATION:**
- Operation:** Motor operated folding partition shall be driven by means of a roller chain attached to the stabilizer bar trolley. An internally mounted stabilizer bar shall keep Lead Posts plumb and in proper alignment during operation and insure a tight-fitting closure without the use of mechanical latches.
 - Assembly:** Shall consist of a 1.5/230 volt single-phase A.C. motor or 208 volt 3-phase A.C. gear motor, reversing electromagnetic starter and limit switches. Size of each motor shall be determined by manufacturer to insure proper operation.

2.04 ACOUSTICAL PERFORMANCE

- A. Sound transmission class (STC) shall be STC43 when tested in accordance with requirements of ASTM E-90.

2.05 COLOURS

- A. Powder coat finish colours to be selected from manufacturer's standard colours.

PART 3 – EXECUTION

3.01 PREPERATION BY GENERAL CONTRACTOR

- A. Openings shall be constructed to the dimensions specified & approved.
- B. Openings to be straight, plumb and level.
- C. Headers to be parallel with the finished floor to within +/- 5mm over the entire length of the opening.

3.02 INSTALLATION

- A. Install partitions in accordance with manufacturer's instructions.
- B. Upon completion of the installation, the General Contractor shall protect partitions from damage and replace or repair subsequent damage so that the partitions are acceptable to the architect, at no additional cost to the owner.

PART 4 – FURTHER SPECIFIERS INFORMATION

4.01 ELEVATION DESIGN SPEC

- A. Single Parting – single partition which stacks entirely to one side when in the open position and latches closed at the other side.
- B. Bi-Parting – two partitions which stack to each side when in the open position and latch together in the middle.
- C. Rolling Lead Post – single partition which can latch closed at both sides and stack open at both sides.

4.02 PLAN VIEW DESIGN SPEC

- A. Straight door only – all track types can be specified.

4.03 TRACK DESIGN SPEC

- A. T-11 Standard Track with Soffit (310mm wide).
- B. T-11 Standard Track without soffit (305mm wide).
- C. T-02 Suspended Ceiling Track (282mm wide).
- D. If 2.02 Option N or O is specified, then T-09 Track system with Soffit (364mm wide).

Tracks generally supplied as standard to match colour of partition, Arctic White, or other colours can be specified for the Track system to tie in with surrounding ceilings/bulkheads. Refer manufacturers Technical Details for further information on track types and designs.

4.04 STACK DIMENSIONS

- A. Stack Depth for DuraSound is 146mm per lineal meter of opening plus 152mm for Lead Post. For Bi-Parting partitions use half the width of the opening.
- B. Thickness of the door when Stacked Open is 280mm.

4.05 MAXIMUM DIMENSIONS

- A. 3.4m high Standard model DuraSound
- B. Over 3.4m high DuraSound with Stabilizer Bar
- C. Over 4.0m high Motorised Operation required (max 5m high)

Note: almost no limitations in width.

4.06 REQUIRED DIMENSIONS FOR MANUFACTURE

- A. Fully detailed and authorised measurements of the opening are required on Fabrication Measurements Forms provided by Won-Door.
- B. Typical opening measurements required:
 - Width at top of opening.
 - Height at 2m intervals across length of opening.
 - Floor Covering thickness.

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END OF SECTION

Why DuraSound & DuraFlex Folding Partitions?

The most cost effective partition on the market.

DuraSound (acoustic) & DuraFlex (non-acoustic) aluminium accordion folding partitions increase building utility & flexibility by offering a range of sight and sound barrier solutions for your space division. Also known as room dividers, accordion walls and concertina doors. These versatile accordion partitions are very competitively priced, cost less to install and maintain, and last years longer than any other folding partition on the market.

A great solution for dividing and separating spaces in many applications including

Educational Facilities	Churches	Community Centres
Early Childcare Centres	Sports Clubs & Gyms	Offices
Conference & Meeting Rooms	Elderly Care Facilities	Multi-Purpose Areas

Worn Door is the world's largest manufacturer of Accordion Type Folding Partitions and is recognized worldwide as the industry leader in quality & design.

DuraSound

BROCHURE
TECHNICAL DETAILS
SPECIFICATIONS

Available in 10' 10" up to 10' 6" and not easily installed in less than 10' 0" (for doors over 4m tall Motorisation is recommended).

[PHOTO GALLERY](#)

DuraFlex

BROCHURE
TECHNICAL DETAILS
SPECIFICATIONS

Available in 10' 10" up to 2.4m and ideally installed in areas for width (vertical opening only).

Features of DuraSound & DuraFlex Wall Dividers

DURABILITY & LIFE SPAN

30+ year life span! With no internal parts to get damaged and patented v-grooved aluminium panels, Won-Door is designed to last as long as the buildings in which they are installed.

SMOOTH, EFFORTLESS OPERATION

Lightweight aluminium partitions are easy to operate (10kg m² for DuraSound & 9kg m² for DuraFlex).

EASY INSTALLATION

DuraSound to be installed by qualified personnel with minimum inconvenience, while DuraFlex can be installed by customer or Won-Door personnel if required.

IN-PLACE REPAIRABILITY

With simple tools, in-house maintenance staff can repair any damaged parts by simply removing and replacing panels, hinges or rollers.

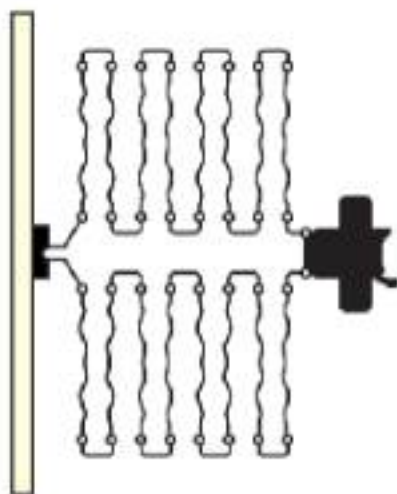
NO FLOOR TRACK

Won Dorr's design eliminates the need for troublesome floor tracks and exposed hardware.

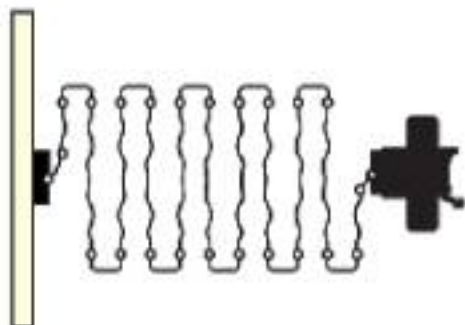
COLOURS & FINISHES

Attractive and modern powder coat finishes available.

DuraSound Single Parting Opening



DuraFlex Single Parting Opening



DuraSound & DuraFlex Room Dividing Configurations

Won Door's unique design provides numerous possibilities for dividing up spaces. From traditional Single Parting & Bi-Parting options to multiple doors intersecting.

DuraSound construction & acoustic performance

Won-Door DuraSound has an STC43 acoustic rating and is ideal for separating and dividing off areas where a sound barrier is required. DuraSound is commonly specified in Classrooms & Meeting Rooms, Conference Centres and many other applications where larger areas are divided into smaller multi-use spaces. DuraSound provides superior acoustic insulation and durability at a very cost effective price.

DuraSound acoustic partitions operate on a patented twin track system. Unlike other pentagraph style partitions, DuraSound is engineered with no internal parts to get damaged or fail under operation. Won-Door DuraSound is a double walled aluminium partition with an internal air cavity designed to absorb a tremendous amount of abuse without showing a dent or scratch on the door. This air space between the two aluminium walls creates an effective cushion against even the most severe blows.

Available in heights up to 6m and virtually no limitations for width (for doors over 4m tall Motorization is recommended).



Acoustic Performance

DuraSound has an STC43 rating.

What is STC? Sound Transmission Class (STC) is an integer rating of how well a building partition attenuates airborne sound. Numerical values for STC are comparable to Rw values (Weighted Sound Reduction). As a guideline it is commonly accepted that an Rw33 (or STC33) rating is suitable for primary schools and small meeting rooms. While an Rw36 (or STC36) is appropriate for meeting rooms, church halls and classrooms.

The performance of an acoustic partition also depends on the building in which it is installed.

Peripherals leakage can occur through the ceiling, floor or even through air conditioning vents and can limit the effectiveness of an acoustic partition.

Take a closer look

DuraSound



NEXT GENERATION GYM

[SEE PROJECT](#)

DuraFlex



FLEX FITNESS PUKEKOHE

[SEE PROJECT](#)

[0800 688 555](tel:0800688555)

[09 634 2242](tel:096342242)

info@won-door.co.nz

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[Auckland, New Zealand](#)

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2021

jcareydesigncourts

Residential Construction | Furniture | Specialized Joinery





business strategy
implementation &
evaluation



organizational
structure & culture



1217 years
of history
from the first
beginnings



implementation
of 2010



strategy: new
HR staff



production
infrastructure &
F&E activities



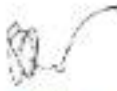
2021 edition

From our inception in 2003 the jcareydesign brand has become synonymous with the design, manufacture and installation of courtroom furniture.

In this our 2021 publication, we have categorised our portfolio in relation to specific areas within a court building. Our in-house team of designers have unparalleled knowledge within this sector, and work in sync with architects, interior designers, and main contractors to accomplish all aspects of the brief, provide best possible value, and fully compliant solutions. Providing functional, durable and aesthetically pleasing furniture for modern-day courtrooms and ancillary areas, to last for many years to come.



Jonathan Jacob-Carey



David Dwyer



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your copy of this edition call
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- 50 reception
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- 55 miscellaneous data

SPECIFICATION

We offer a vast range of products that we can alter design style or specification to meet any budget. Over the years to help people make smart choices we have developed a formal, clear and guiding guide. This way is used throughout our brochure.



courtroom
furniture





These images illustrate the
 design of the courtroom, which
 is designed to be a modern
 and efficient space for the
 judiciary.

01

The design of the courtroom
 is a modern and efficient
 space for the judiciary, which
 is designed to be a modern
 and efficient space for the
 judiciary.

02







These views are for **reference** only. The actual design and construction of the courtroom will be determined by the architect and the court system. The views are not intended to represent the final design or construction of the courtroom.

320

number of people
that can be seated at any one time

20

quantity of individual
dormitories units
which together form
total dormitory



A fully furnished courtroom is a complex
environment with many different types of furniture
and it can be quite expensive.





This high-quality, modern interior is built
into a modern, efficient, and sustainable space
that allows for a wide range of uses and
flexibility. The design team has
created a space that is both functional and
aesthetically pleasing, with a focus on
creating a high-quality, sustainable interior.



This new courtroom is designed to be a flexible space for the future. It is a modern courtroom that is designed to be a flexible space for the future. It is a modern courtroom that is designed to be a flexible space for the future.

100



For more information, contact us at 01203 250000 or visit our website at www.prestigeinteriors.co.uk

Provision of services for the public and
the Government of the United Kingdom
is a priority for the Government of the
United Kingdom.





Un nou sediu pentru
 activitatea parlamentara
 este in curs de finalizare
 la sediul din strada Republicii.

13



Un nou sediu pentru
 activitatea parlamentara
 este in curs de finalizare
 la sediul din strada Republicii.

14





These beautiful **Executive Courts**
provide a standard of luxury and
comfort possible in no other room.



Although this is a new design,
it has a high quality and
is suitable for the future.
The design is a new design,
it has a high quality and
is suitable for the future.

Das Bild zeigt eine modern ausgestattete
Gerichtshalle mit hölzernen Möbeln.
Im Vordergrund sind die Bänke für die
Anwältinnen und Anwälte zu sehen.
Im Hintergrund befindet sich das
Richtertisch und die Urnen für die
Wahl der Richter.



Procedura sądowa (Sąd rejonowy dla M. St. Warszawy, XII Olsztyński Wydział Gospodarczy Krajowego Rejestru Sądowego, KRS 0000392050, NIP 142-626-11-89, REGON 141987311)

10



Procedura sądowa (Sąd rejonowy dla M. St. Warszawy, XII Olsztyński Wydział Gospodarczy Krajowego Rejestru Sądowego, KRS 0000392050, NIP 142-626-11-89, REGON 141987311)



With a spacious and
well-lit courtroom,
the **Section 10** is
perfect for all your
courtroom needs.



3. Design: Intermodulare Tische mit Sitzflächen
 Das Projekt wurde als eine offene, flexible
 und kostengünstige Lösung konzipiert.

1. Design: Intermodulare Tische mit Sitzflächen



Das Design-Team hat die Tische
 als eine flexible und kostengünstige
 Lösung konzipiert.



Room 10 (Courtroom)
Room 11 (Courtroom)
Room 12 (Courtroom)
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Room 14 (Courtroom)
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These practical virtual meeting rooms will
 handling video, audio, content
 interaction, allow screen sharing,
 drawing, chat feature, meeting notes,
 audio, recording, screen and more



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These courtroom furniture sets are available
from multiple sizes of a new table-top,
which allows you to create your own
courtroom layout. The price is just \$100 per set.

1000

3

print solutions completed
in England and Wales for the
Courts of the Future.



Our new courtroom furniture is providing
courtrooms with a modern, functional, and
stylish environment. The new furniture is
designed to be used in a variety of ways,
allowing courts to adapt to changing
requirements and be prepared for the future.

Page 6



docks and public galleries

West gatehouse used for rehearsal
to allow designing for music display
between restaurants, auditorium
space and high security galleries to
provide a complete visitor experience

0100





Il design è un processo
che si svolge lungo il
tempo, e che serve a risolvere
problemi e creare
nuovi spazi.



cable management

fully integrated looking cable tray
 also as floor-standing system
 with cable tray and for hanging
 throughout the installation

1000

integrated glass cable tray
 also with up to 100 mm cable
 tray, glass cable tray
 by different materials

1000

fully integrated cable tray system
 looking extremely clean and
 also suitable for the installation
 in the installation of the cable

1000



audio
visual



Because the students already have
digital record-keeping resources for
audio-visual equipment, they can
be encouraged to connect directly with
the equipment without a third party.

acoustic treatments

Acoustic sound absorbing wall and ceiling panels are often a requirement within a new classroom fit-out, with styles including traditional raised & fielded, or more contemporary slotted, perforated, slatted, grooved or coloured acoustic panels.

crests



Crests display the official stamp of HMCTS depicting the royal coat of arms within each finished courtroom, and are available in a variety of sizes, styles and finishes.



Traditionally, crests were made of wood or metal, but now they can be made of many materials, including stone, metal, wood, and plastic.

1000



There are many different styles of crests, and they can be made in a variety of materials, including wood, metal, and stone.

1000



There are many different styles of crests, and they can be made in a variety of materials, including wood, metal, and stone.

1000

courtroom
seating



From temporary events, job
interviews and seminars designed
for university or public, and
multi-purpose use office furniture
solutions meeting all needs.



300+

different reading targets
evaluation

2,000+

imposed quantity of cinema
exhibited for each product.

Stress and its perception is linked to a tendency to overestimate negative outcomes in otherwise neutral and positive contexts of social interaction. The view that the negatively biased view is a dysfunctional thinking.

1





Work chairs with the most advanced
 technology are
 designed to be used
 for many years to come.



signage



The design and materialisation
of the signage for the Shrewsbury
Justice Centre was subject to a number
of design iterations and a final
materialisation.



010 Shrewsbury Justice Centre signage



011 Shrewsbury Justice Centre Main Entrance sign



012 Shrewsbury Justice Centre directional sign



017 Lobby sign direction



012 Main floor lobby direction

By using this approach the Project team
was able to identify the right sign for
the building, which is the right
sign for the building.



011 Main floor lobby direction yellow wall



010 Reception direction



016 Reception direction yellow wall



015 Reception direction yellow wall



014 Main lobby



013 Main lobby direction yellow wall



011 Main lobby



010 Reception direction



013 Reception direction



012 Reception direction



011 Reception direction

front
of house

Courts' Reception



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High volumes of visitors pass through these areas daily, providing a vital point of contact between staff and the general public.





All services are accessible including self-service
desks for secure payment desks for the Police
Prisoners' Trust and the Prison Building



Public counters

From a large main reception to secure payment counters, sales, births and deaths, youth offenders and others, we catered accordingly for each specific use.



interior design project
the interior design and architecture
interior design and architecture
interior design and architecture





Counters are finished with wood and stainless steel for a clean, modern look. The counter is made of wood and stainless steel.



Wooden counter-tops and stainless steel are available in various finishes and colors. The counter is made of wood and stainless steel.

front of
house
seating





Meeting, lounge area and lounge
 Area, lounge, lounge area
 Lounge, lounge, lounge area

retiring
rooms



Working spaces that are designed just
 right, in sustainable building
 that are built to last. At **Prologis**,
 we're building the future.



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Upgrading desks, storage, meeting tables and chairs, portable and permanent audio-visual equipment, and furniture is not the complete answer.

REF



Planung, Herstellung, Installation
von Büromöbeln für kleine und mittel-
große Betriebe



Planung, Herstellung und
Installation von Büromöbeln
für kleine und mittel-
große Betriebe



staff offices

they're the working of a
great building, which
means intelligent, flexible
space planning is essential
and highly cost-effective



Swimming, boogie boarding, surfing, fishing, kayaking, windsurfing, and sail racing are all available, and all provided for the well-being of the beachgoers. Family Beach and Island Center offers:





2. Implementation of public
order and discipline
measures in the
workplace and in the
workplace environment

100

100



Office cleaning and storage
 services are available for
 all of our clients. We
 are ready to assist you.



teapoints

Staff welfare facilities can be adjusted in size and style to suit budget constraints.



*Integrated storage systems and services
kitchens are intelligently designed to
incorporate integrated appliances, cabinetry
and accessories into the design.*

auxiliary areas

Other areas we furnish include advocates rooms, vulnerable witness, VC rooms, jury deliberation areas, dining, breakout, consultation and interview rooms.



demountable
dais



These demountable dais
can be used for a variety of
of different purposes for
events and more.

courthouse overview

1000

[illegible][illegible]

1994-1995

Generally, utilized in these interviews as flexible guidelines, findings for this study suggest that routine traffic judges, clerks and laboratory technicians, rather than, officers found *Nervousness* various symptoms. *Nervousness* related that was, identified by judges and clerks, along with a wide range of finding. Again, these can be supplied to a witness, clerk or post-accident, or fully forensic officers. Two are selected to present the following results in all their interviews.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

the other, however, might be used to construct an alternative. Regularly scheduled visits to the Great East of Asia, of the Great Kingdom, and the Kingdom of Central is a wide range of ways and styles. Although some of the most common and most popular are listed, it is not a comprehensive, exhaustive, or even a complete list of ways.

448 *Journal of Management Inquiry* 14(4)

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It's simply a wide variety of seating options, whether the chair is a swivel, a reclining chair, or a combination chair, including footstool, ottoman, highback and memory-foam-adjustable seating. 2200 accessories chairs, lounge ottoman, and lounge sofa, leather covers. Available to upholster seating and many more which can be found at www.furniture.com. Furniture.com is an online furniture store, providing a wide range of furniture and home decor.

Author's note: I am grateful to the referees for their helpful comments.

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and β are the parameters to be estimated.

For example, because most researchers have digital data, we provide certain information for both clothed and unclothed. In studies of love and desire, researchers must be particularly sensitive.

<http://www.fishbase.org>

Other existing output streams, such as offices and equipment, additional funds and more are either limited or obsolete. Our judge explained, identifying our misunderstanding, a few points. Courts have been upgraded, making the modification of non-judicial functions become more appropriate to the ability of public justice, and the addition of criminal justice system is more efficient. Additional crime gate has been established to ensure criminals, these courts are changing, to bring in more across the entire US to control security institutions.

Review of Evidence about Substances

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Abstract

Long-term, low-maintenance, low-impact, easy-to-maintain, and low-cost solutions are required. The design of the building envelope is critical to the success of the building. The building envelope is the barrier between the interior and exterior of the building. It is the first line of defense against the elements. The building envelope must be designed to provide a high level of energy efficiency, durability, and security. The building envelope must also be designed to provide a high level of indoor air quality. The building envelope must be designed to provide a high level of fire resistance. The building envelope must be designed to provide a high level of sound insulation. The building envelope must be designed to provide a high level of moisture resistance. The building envelope must be designed to provide a high level of thermal insulation. The building envelope must be designed to provide a high level of light transmission. The building envelope must be designed to provide a high level of ventilation. The building envelope must be designed to provide a high level of air conditioning. The building envelope must be designed to provide a high level of heating. The building envelope must be designed to provide a high level of cooling. The building envelope must be designed to provide a high level of humidity control. The building envelope must be designed to provide a high level of air filtration. The building envelope must be designed to provide a high level of air purification. The building envelope must be designed to provide a high level of air dehumidification. The building envelope must be designed to provide a high level of air conditioning. The building envelope must be designed to provide a high level of heating. The building envelope must be designed to provide a high level of cooling. The building envelope must be designed to provide a high level of humidity control. The building envelope must be designed to provide a high level of air filtration. The building envelope must be designed to provide a high level of air purification. The building envelope must be designed to provide a high level of air dehumidification.

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Welcome to the new 8th edition Cell Security Limited product catalogue.

The new 8th edition catalogue is filled with information and over 540 PRODUCTS detailing the latest developments in custodial and detention equipment. During the past 25 years, since the formation of Cell Security in 1988, a portfolio of products have been developed to truly deliver A SINGLE, INTEGRATED SOLUTION for the custodial environment for all our clients both in the UK and Internationally. Cell Security Ltd offer high security UK MANUFACTURED PRODUCTS of the highest quality and to the latest standards for new construction, extension and refurbishment, combined with planned preventative maintenance, spares and repairs.

Prisons
Police
Courts
Immigration
Customs
Armed Forces
Secure Hospitals

What's new in the 8th edition

European specification cell door
New observation cell door
Ligature resisting gate
Secure hospital sedation room door
ASTM specification cell door
S&B Acoustic door
Expanded range of detention furniture
New prison window
New police cell window
Prison gable end grilles and curtain walling
Cell roof light and sun pipe
Expanded range of sanitary ware
Washroom accessories
New custodial LED lighting
Expanded range of mirrors
Security management system
New cell call & alarm systems
Expanded range of locks & components
New range of door hardware
Expanded range of viewers & hatches
New accessories range
Expanded range of spares

Cell Security Limited has continued to reinforce its position as the UK's leading manufacturer of custodial & detention solutions by continuing to develop and deliver new innovations to improve the safety, quality and cost effectiveness of its products.

Cell Security Limited is approved in the UK by the HOME OFFICE (responsible for police establishments) and the MINISTRY OF JUSTICE (NOMS) (responsible for prison, court and immigration establishments). This extensive knowledge of the highly regarded UK standards for custodial products and facilities can offer great benefits to our international clients. Cell Security Ltd not only manufactures and installs products, but we assist our International clients with best practice design advice.



Also new for 2013 is our specially developed PRISON WORKS DIVISION BROCHURE. The brochure outlines the range of products and services we can provide to the UK prison services works departments to help maintain, refurbish and replace a wide range of prison door components, furniture, fixtures and fittings.



The new 8th edition catalogue incorporates many new products for our International clients. Cell Security Limited is represented internationally by a NETWORK OF DISTRIBUTORS. Our products are installed in establishments in over 20 nations worldwide. Please visit our website for our list of distributors.

UAE • Bahrain • France • Cyprus •
Gibraltar • Iraq • Ireland • Czech Republic
• Caribbean • Sudan • Afghanistan • Hong
Kong • Mauritius • Somalia • Saudi Arabia

Product drawings are prepared by Cell Security Limited's team of draughtsman for each contract using the latest 3D CAD software. Our team of draughtsman ensure our products are designed, drawn and presented for approval in accordance with the project programme. Our team of surveyors will carry out the necessary site surveys and pre-installation check prior to site installation. Many products are held in stock for immediate despatch with fabricated products such as doors & windows manufactured to order by our experienced team of production engineers. Bespoke design and manufacture to suit specific requirements is also offered.



Cell Security Limited's technical and manufacturing capabilities are supplemented with dedicated teams of installation engineers offering full UK coverage and internationally. All our engineers are full time employees with the appropriate security clearances for working in secure establishments.



The publication of the new 8th edition catalogue coincides with the 10 year anniversary of Cell Security Ltd joining the BOWMER + KIRKLAND GROUP. With the continued support of the group, Cell Security has continued to grow and invest in product development. Cell Security remains in the privileged position of being the BENCHMARK FOR CUSTODIAL PRODUCTS which is why our products continue to be specified by design professionals who require surety of product performance in demanding environments.



In 2006 our parent company, BOWMER + KIRKLAND, formed a Homeland Security Division, SONIC CELL INTERNATIONAL, of which CELL SECURITY were the founding member. Since then SONIC COMMUNICATIONS (INT) LTD and PANOPTech have joined the group and combined we help the police and national agencies meet the threat of, and manage the impact of, international terrorism and crime. 2011 saw the addition of SONIC CELL MIDDLE EAST to the group, providing a direct sales channel into the region.

Sonic Communications (Int) Ltd has 30+ years' experience in the security industry and specialises in the design and manufacture of a large number of communications accessories for both overt and covert digital and analogue radios, the supply of body worn, fixed and vehicle covert video surveillance equipment, and carrying out specialist vehicle installations for law enforcement agencies, government departments and military units, worldwide.

Panoptech are security solutions providers offering CCTV system design and installation, high performance wireless transmission links, integrated command and control software, evidential audio/video recording and streaming solutions together with secure networks and hardware.



EXCELLENCE IN PROFILE

Cell Security Ltd provide a comprehensive range of cell doors for custody officers to deal with detainees safely. Built to a high specification they comply with the relevant standards for Police Stations, Magistrates Courts, Crown Courts, Prisons, HM Armed Forces, Custom and Excise, or any buildings that require a detention facility. Door units are also available that meet a Worldwide or European Standards.

All doors are of a welded steel construction, hung on a continuous or pivot hinge, and supplied in a substantial steel frame. Door panels are insulated with mineral wool and where applicable fitted with internal reinforcing kick plates on the cell side to resist abuse.

Please note: Where required we can also provide door panels to be set within existing door frames. Each door will either be supplied with, or prepared for, a secure approved detention lock.



CSL0101
Cell Door (CBL)
Police Station



CSL0102
Cell Door Electric Locking (CEL)
Police Station



CSL0103
Cell Door
Police Station / Armed Forces



CSL0104
Cell Door
Magistrates Court Existing &
Replacement



CSL0105
Cell Door
Magistrates Court & Crown Court
Type A New Build



CSL0106
Cell Door
Custom & Excise



CSL0107
Cell Door
English Prison



CSL0109
Double Cell Door
English Prison



CSL0110
Double Cell Door
English Prison



CSL0111
Cell Door
Scottish Prison



CSL0112
Cell Door
Irish Prison



CSL0113
Cell Door
Prison Integrated Drugs
Treatment system



CSU0114
Cell Door
Prison Hospital



CSU0115
Cell Door
Prison Dirty Protest



CSU0116
Observation Door / Gate / Frame
Prison



CSU0117
Cell Door
Observation
(Home Office Approved)



CSU0118
Cell Door
Observation



CSU0119
Holding Room Door (HOL)
Police Station



CSU0120
Holding Room Screen
Police Station



CSU0121
Cubicle Cell
Police Station



CSU0122
International Cell Gate
Police Station / Jail / Detention



CSU0123
Cell Gate Ligature Resisting
Police Station / Jail / Detention



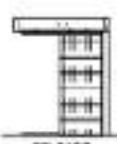
CSU0124
Cell Door European
Prison



CSU0125
ASTM Hinged Cell Door
Police Station / Jail / Detention



CSU0126
ASTM Sliding Cell Door
Police Station / Jail / Detention



CSU0127
ASTM Sliding Cell Gate
Police Station / Jail / Detention



CSU0128
Timber Service Duct Door (DUC)
Police Station / Jail / Detention



CSU0129
Service Duct Door inc Locker
Police Station / Jail / Detention



CSU0130
Service Duct Door
Police Station / Jail / Detention



Specification

- Door panel constructed from 40mm wide rolled hollow steel sections with 3mm thick steel door skins.
- Cell side of door clad with an additional 0.5mm thick bright annealed rigidized stainless steel skin.
- Internally reinforced with 3mm thick plates up to the underside of lock.
- Mineral wool insulation to all internal voids.
- 125mm x 75mm x 3mm rolled steel angle frame.
- 50mm x 25mm stainless steel rebates. Welded and monobolted to door frame.
- Frame fixed into the structural opening with concealed 12mm dia sleeve anchors.
- Door panel mounted within the door frame and hung on a substantial continuous hinge.
- Home Office Type 3 slam action electric lock with adjustable keep.
- Gasket free vertical leaved vision panel.
- Full View 3 position service hatch.
- Tolerances between door panel and rebate conforms to current Home Office specification rather than standard 2mm.

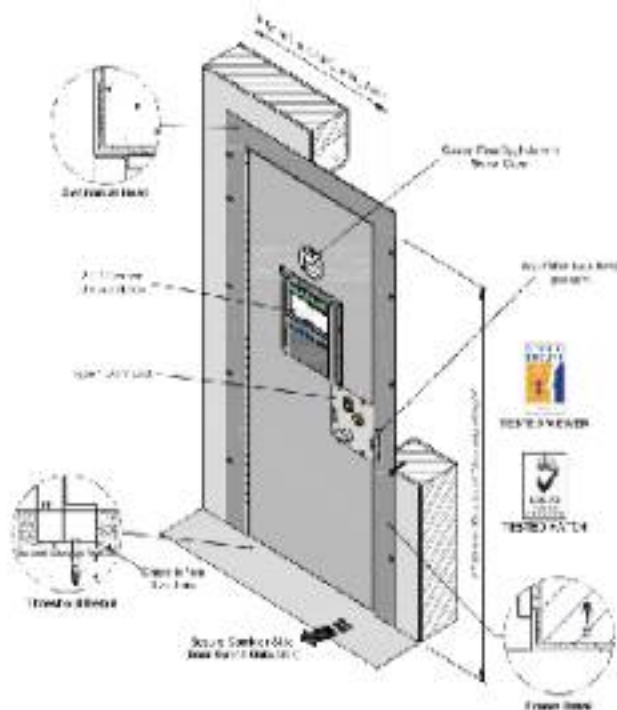
Finish

- One coat factory applied high build zinc phosphate primer to all mild steel surfaces.
- Sigilard stainless steel bright anneal on roll side of door panel. (Pattern ref: 1210)

Options

- Gasket-free circular apertures with twist-on cap.
- Frame profile and flange to suit a variety of joining constructions.





Specification

- Door panel constructed from 40mm wide rolled hollow steel sections with 3mm thick steel door skins.
- Mineral wool insulation to all internal voids.
- 125mm x 75mm x 3mm rolled steel angle frame.
- 50mm x 25mm R45 mild steel rebates welded to door frame.
- Frame fixed into the structural opening with concealed 12mm dia sleeve anchors.
- Door panel mounted within the door frame and hung on a substantial continuous hinge.
- Reinforcing plates to inside of door panel on cell side up to the height of the lock.
- Home Office Type 1 slim action lock with adjustable loop.
- Single hand operation 2 position service hatch.
- Sealant free circular apertures with spiral covers.

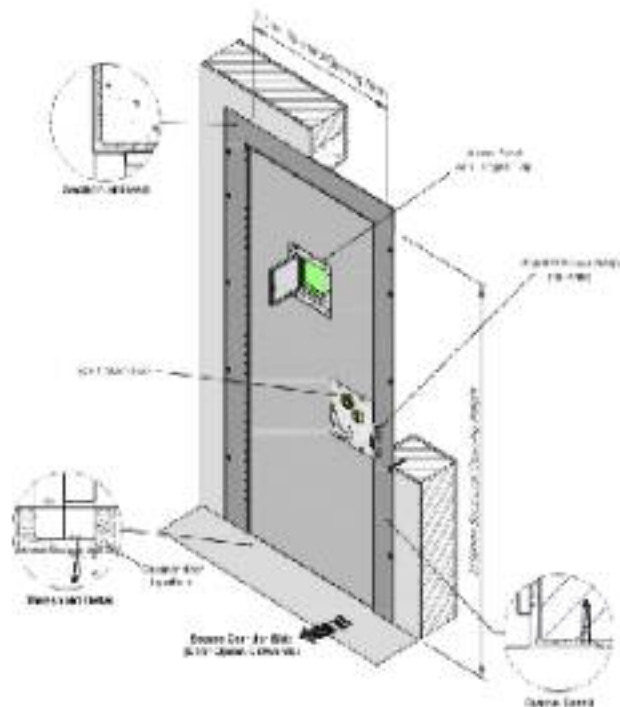
Finish

- One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

- 20mm thick rigidized stainless steel bright annealed skin to cell side of door panel. (Pattern ref: 125-01)
- Vertical loured vision panel.
- Full view 2 position service hatch.
- Stainless steel door frame rebates.





Specification

- Door panel constructed from 40mm wide rolled hollow steel sections with 3mm thick steel door skins.
- Mineral wool insulation to all internal voids.
- 125mm x 75mm x 3mm rolled steel angle frame with 50mm x 25mm steel rebates.
- Frame fixed into the structural opening with concealed 12mm dia slope anchors.
- Door panel mounted within door frame and hung on 4 substantial continuous hinges.
- Reinforcing plates to inside of door panel on sill side up to the height of the lock.
- Memo Office Type 1 alarm action lock with adjustable loop.
- 140mm x 140mm x 20mm thick physical attack laminated glass vision panel with hinged steel cover.

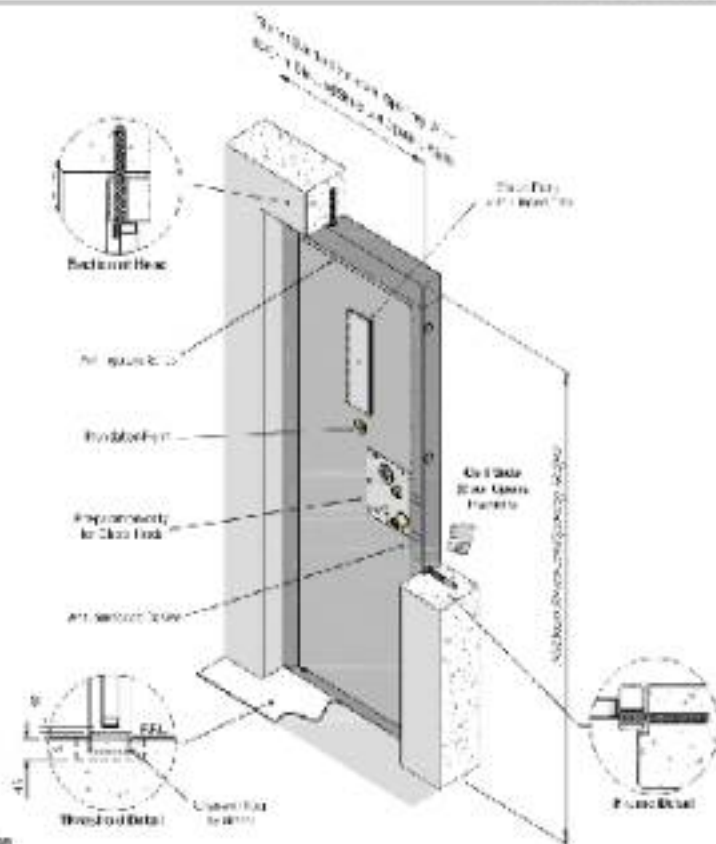
Finish

- * One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

- Castout from circular any hole with spiral access.
- Service hatch.





Specification

- Door panel constructed from 38mm wide rolled hollow steel sections with 3mm thick steel door skins seam welded along all edges and manufactured in accordance with all current MoI standards.
- Mineral wool insulation to all internal voids.
- Steel hollow section door frame with anti-barricade device.
- Frame fixed by chemical resin anchors.
- Door panel mounted within door frame and hung on a full height tubular steel pivot hinge.
- Inundation unit.
- Vertical laminated glass vision panel with hinged steel cover.
- Preparation for MoI Class 1 locks applied and fitted by HIPS or Private Prison Operator.
- Anti-ligatures strips to front face of door, along top and down leading edges terminating at lock.

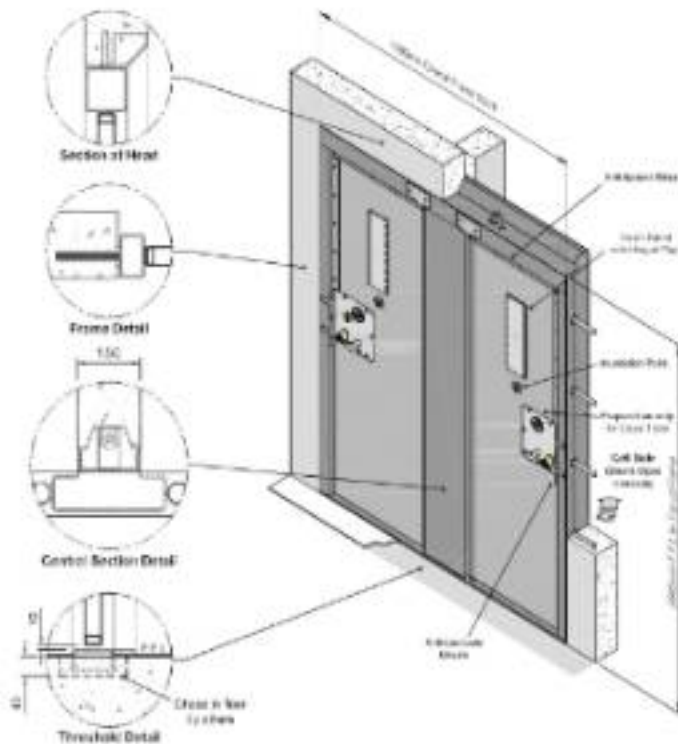
Finest

- * One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options:

- ISTD Hatch.
- Caption type Frame.
- Heavy duty beam/bolt.





Specification

- Door panels constructed from 58mm wide rolled hollow steel sections with 2mm thick steel door skins seam welded along all edges and manufactured in accordance with all current fire standards.
- Mineral wool insulation to all internal voids.
- Cast-in double frame type.
- Steel hollow section door frame with anti-barricade device and control pressed steel closure panel.
- Door panels mounted within door frame and hung on a full height tubular steel pivot hinges.
- Inundation unit.
- Vertical laminated glass vision panel with hinged steel cover.
- Preparation for Mail Class 1 lock supplied and fitted by HMPS or Private Prison Operator.
- Anti-ligature strips to front face of door, along top and down leading edge terminating at lock.

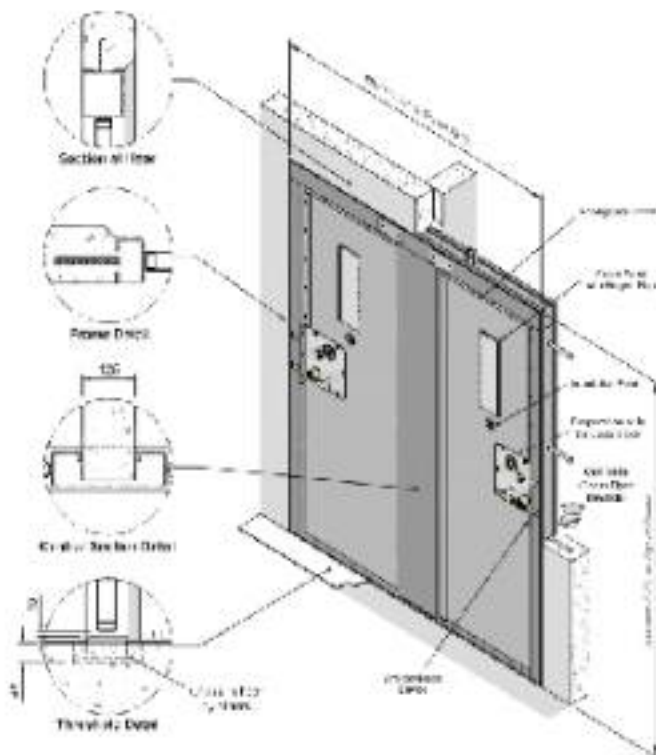
Finish

- One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

- 10TS handle.
- Heavy duty barrel bolt.
- Anti-bar casting hoops in lieu of rods.
- Standard frame type.





Specification

- Door panels constructed from 38mm wide rolled hollow steel sections with 1mm thick steel door skins seam welded along all edges and manufactured in accordance with all current Mol standards.
- Mineral wool insulation to all internal voids.
- Cast-in double frame type.
- Steel hollow section door frame with anti-barricade device and central pressed steel closure panel.
- Door panels mounted within door frame and hung on a full height tubular steel pivot hinges.
- Inundation unit.
- Vertical laminated glass vision panel with hinged steel cover.
- Preparation for Mol Class 2 lock supplied and fitted by HADPS or Private Prison Corporation.
- Anti-ligature strips to front face of door, along top and down leading edge terminating at lock.

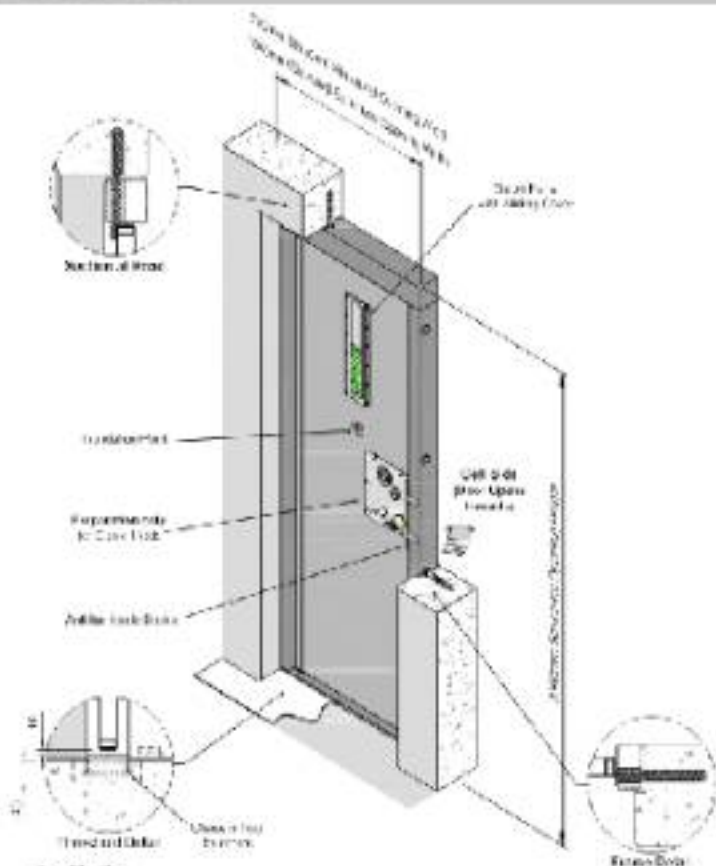
Finnish

- * One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Citations

- JTS hatch.
- Heavy duty barrel lock.
- Sticker casting bridge in line of rods.
- Standard frame type.





Specification

- Door panel constructed from 35mm wide rolled hollow steel sections with 2mm thick steel door skins seam welded along all edges and manufactured in accordance with all current SP5 standards.
- Mineral wool insulation to all internal voids.
- Steel hollow section door frame with anti-barricade device.
- Hinges fixed by chemical resin anchors.
- Door panel mounted within door frame and hung on a full height tubular steel girth hinges.
- Insulation unit.
- Vertical laminated glass vision panel with sliding stainless steel cover.
- Preparation for SP5 Class 1 lock supplied and fixed by SP5 or Private Prison Operator.

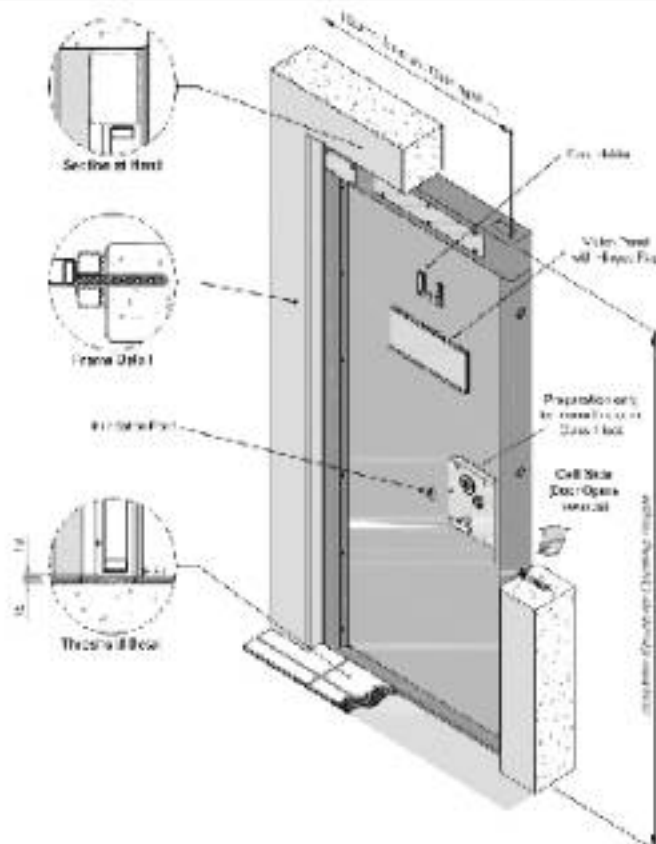
Finish

- One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

- Cast-in type frame.
- Heavy duty barrel bolt.
- Double arrangement.





Specification

- Door panel constructed from 50mm wide rolled hollow steel sections with 3mm thick steel door skins seam welded and manufactured in accordance with all current IPS standards.
- Minimal wool insulation to all internal voids.
- Steel hollow section door frame.
- Frame fixings to suit a variety of opening construction.
- Door panel mounted within door frame hung on a full height tubular steel pivot hinge.
- The frame header is provided with removable panel to allow access to electrical wiring. (All removable panels are secured with security screws, tamper proof switches can be supplied and fitted and wired by others to monitor plate removal).
- Stainless steel card holder.
- Inundation unit.
- Horizontal laminated glass vision panel with stainless steel hinged privacy cover.
- The door panel is prepared for a Manual / Electric IPS Class 2 lock which is mounted on a 50mm thick plate, lock supplied and fitted by IPS.

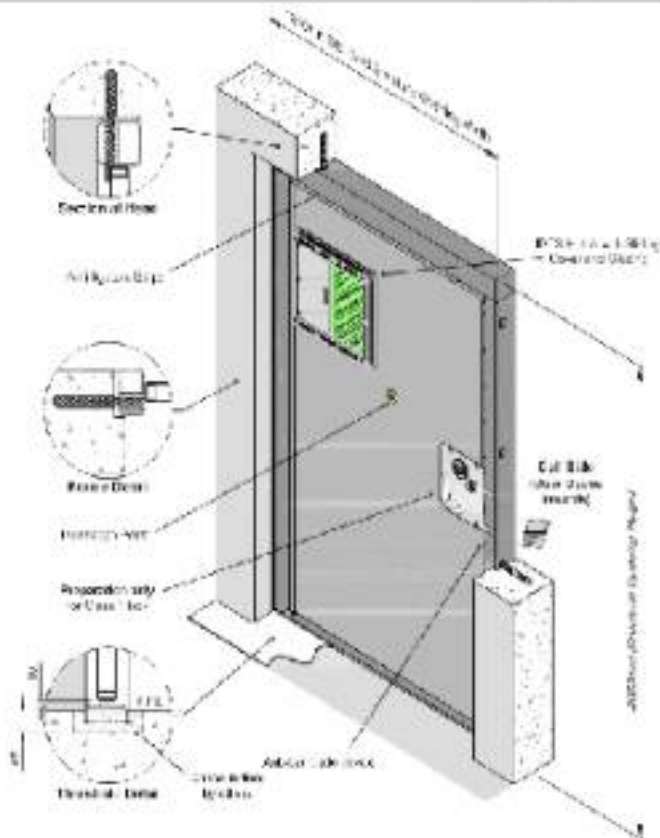


Finish

- * One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

- * Cash-in type frame.
- * Double arrangement.



Specification

- Door panel constructed from 88mm wide rolled hollow steel sections with 2mm thick steel door skins seam welded along all edges and manufactured in accordance with all current New standards.
- Mineral wool insulation to all internal voids.
- Steel hollow section door frame with anti-barricade device.
- Frame fixed by chemical resin anchors.
- Door panel mounted within door frame and hung on a full height tubular steel pivot hinge.
- Foundation unit.
- IDTS Hatch with sliding cover and glazing w/w locking facility.
- Preparation for Max Class 1 lock supplied and fitted by MPPS or Private Prison Operator.
- Anti-barricade strike to front face of door, along top and down loading edge terminating at lock.

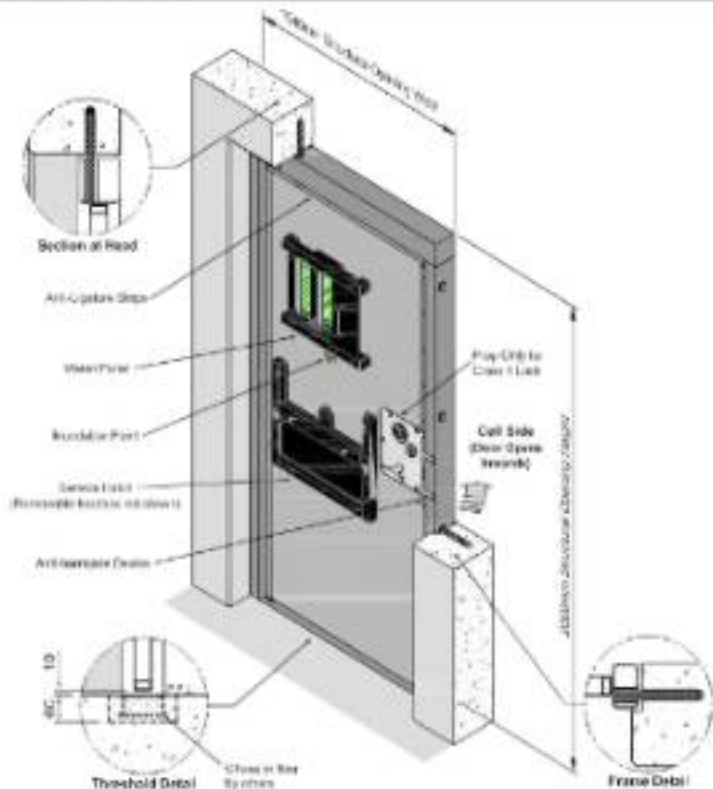
Finanz

- * One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

- * Cast-in type frame.
- * Heavy duty barrel bolts.
- * Double arrangement.





Specification

- Door panel constructed from 35mm wide rolled hollow steel section with 3mm thick steel door skins seam welded and manufactured in accordance with all current MoI standards.
- Mineral wool insulation to all internal voids.
- Steel hollow section door frame with anti-barricade device and preparation for illuminated header.
- Frame fixed by chemical resin anchors.
- Door panel mounted within door frame and hung on a full height tubular steel pivot hinges.
- Inundation unit fitted in door panel.
- Preparation for a slam action MoI Class 1 cell lock supplied and fitted by HMPS or Private Prison Operator.

Finish

- One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Special Features

- Special service hatch with ratchet mechanism which allows hatch to be raised only when feed box is attached to the door.
- Removable feed box.
- Double sliding observation window with cover.
- Stainless steel camera to collect video vision panel footage.
- Double arrangement.

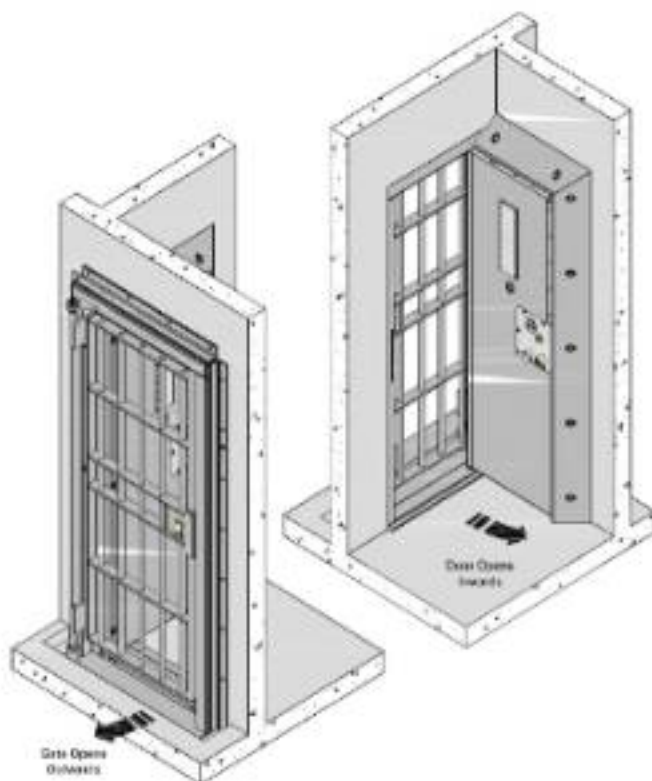


Observation Door / Gate / Frame Arrangement

PRISON

CellSecurity.co.uk

controlled and perimeter solutions

**Specification**

- Door panel constructed as CSUD005 and gate constructed as CSUD406.
- Mineral wool insulation to all internal voids to door panel.
- Steel hollow section door frame with anti-barricade device.
- Frame fixed by chemical resin anchors with welded heads.
- Door panel mounted within door frame and hung on a full height tubular steel pivot hinges.
- Inundation unit.
- Vertical laminated glass vision panel with hinged steel cover.
- Preparation for Maj Class 3 lock supplied and fitted by HMPS or Private Prison Operator.
- Anti-ligature strips to front face of door, along top and down leading edge terminating at lock.

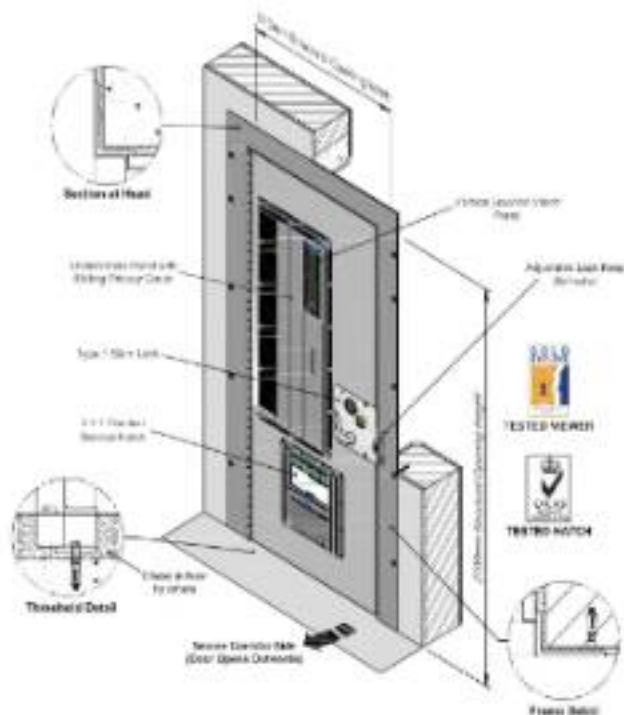
Finish

- One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

- IPTS handle.
- Cast-in type frame.
- Heavy duty barrel lock.



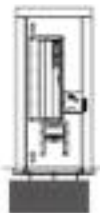


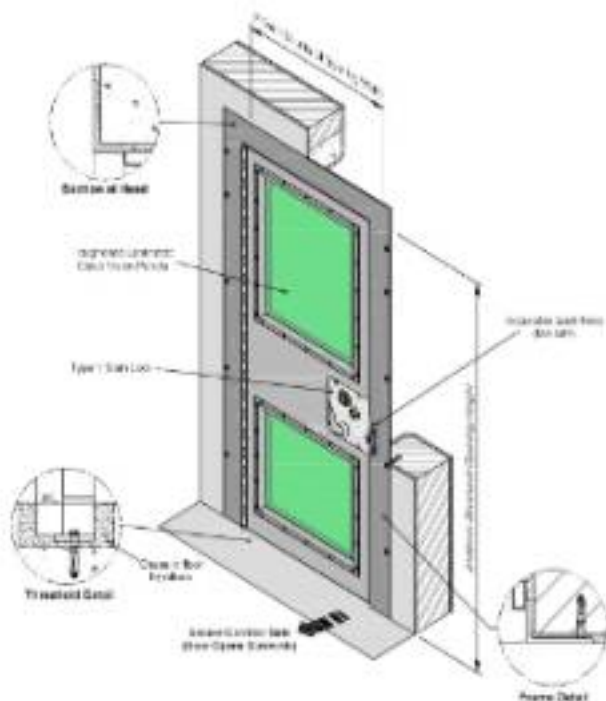
Specifications

- Door panel constructed from 40mm wide rolled hollow steel sections with 3mm thick door skins, grade 304 stainless steel to cell side.
- 125mm x 75mm x 3mm rolled steel angle frame.
- 50mm x 25mm stainless steel robets welded on monobolted to door frame.
- Frame fixed with heavy duty expansion bolts.
- Home Office type 1 stem action lock with adjustable loop.
- Continuous hinges.
- Home Office approved two position hatch.
- Laminated toughened glass / polycarbonate vision panel with sliding privacy cover incorporating a loured vertical vision.
- Rubber door stops.

Finish

- One coat factory applied high build zinc phosphate primer to all mild steel surfaces.
- Cell side door skin and robets, satin polished stainless steel.





Specification

- Door panel constructed from 40mm wide rolled hollow steel section with 3mm thick steel door skins.
- 125mm x 75mm x 3mm rolled steel angle frame.
- 50mm x 25mm steel rebates welded to door frame.
- Frame profiles and fixings to suit a variety of opening constructions.
- Door panel mounted within door frame and hung on a substantial continuous hinge.
- Glass retaining frames are fitted on the corridor side of the door only.
- Standard 22.5mm thick toughened laminated glass.
- Home Office Type 1 slam action lock with adjustable backset.

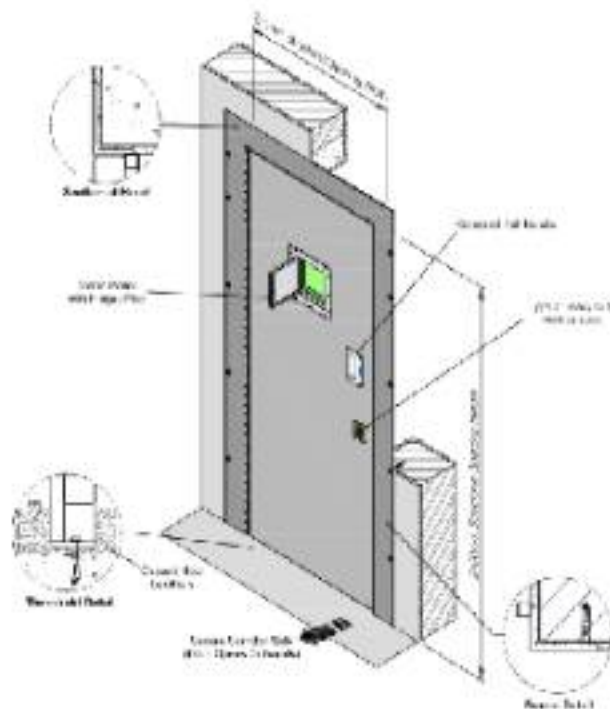
Finish

- * One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options



- 0.5mm thick rigid stainless steel bright annealed skin with glass retaining frame to roll skin of clear panel (Pattern ref. 1205).
- 60 minute X-ray Resisting.
- Resisted Handles when used in conjunction with a type 2 heavy duty mortice deadlock.
- Insull-glass privacy glazing.
- Home Office Type 2 heavy duty deadlock.
- Bullet resisting glass.
- Sliding bolts.
- 2 + 1 Position latch.



Specification

- Door is constructed from a solid timber core sheathed both sides and all edges with 1.6mm thick zinc steel skin pressure bonded to core, interlocked and riveted to give a finished door thickness of 50mm.
- Door is mounted within a 125mm x 75mm x 5mm rolled steel frame and hung from a substantial continuous hinge.
- Frame fixed into the structural opening with concealed 12mm dia sleeve anchors.
- 150mm square x 25mm thick laminated glass vision panel with hinged steel cover.
- Home Office Type 2 heavy duty mortice deadlock with adjustable keep.
- Recessed handle corridor side only.
- Tolerance between door panel and rebate conforms to current Home Office specification not to exceed 2mm.

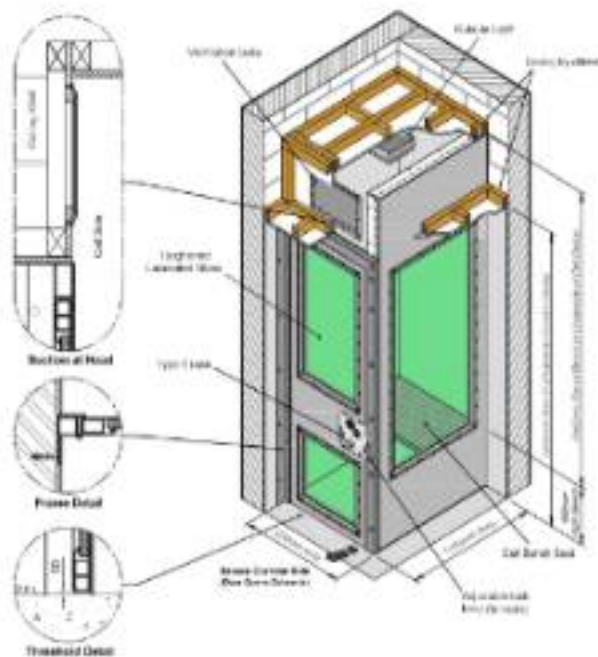
Finish

- One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

- Vertical bi-directional vision.
- Circular peep sight viewer.
- Concealed door closer.
- Frame profiles and fixings to suit a variety of opening constructions.





Specification

- Door panel and flood panels are constructed from 40mm wide steel hollow section framework sheeted both sides with 3mm thick steel skins.
- All glazing is 12.5mm thick toughened laminated glass, the glass retaining frames are secured on the external side of the unit.
- The door panel is hung from a substantial continuous hinge.
- Fixings to suit a variety of opening constructions.
- The door is supplied as standard with a Home Office Type 1 slam action cell lock.

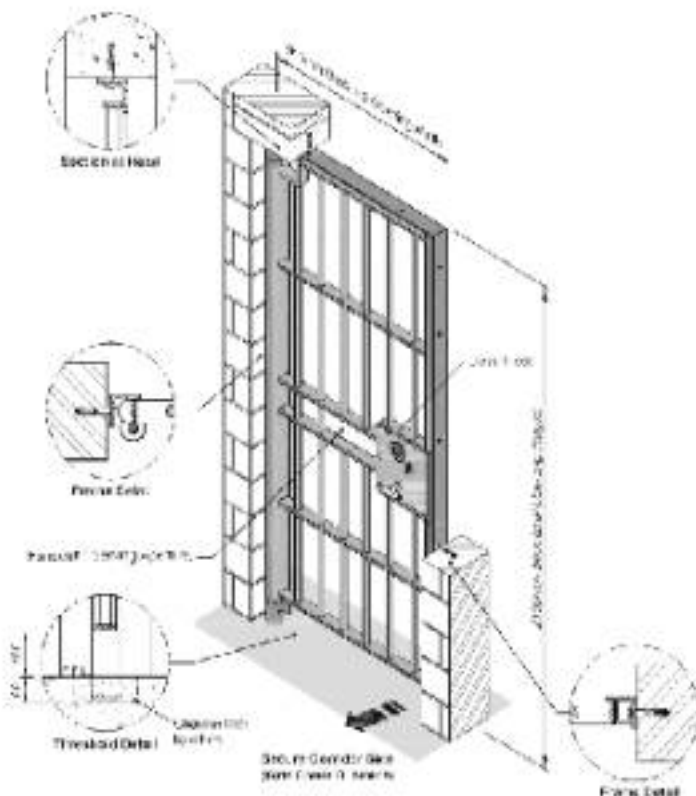
Finish

- One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

- Multiple (side by side) units.
- Privacy glazing.
- Home Office side panels.
- High level ventilation Grilles.
- Ventilation grilles within door panel.
- Cubicle Light.





Specification

- Gate is constructed from 50mm x 12mm flat steel framework with 25mm diameter solid vertical bars.
- Mounted on a 70mm x 70mm x 6 rolled steel angle frame with a full height stainless steel hinge pin.
- Top and bottom pivot hinges bushed, base hinge incorporates a ball bearing to reduce hinge friction and giving ease of movement.
- Frame fixings to suit a variety of opening construction.
- Class 1 heavy duty slam action lock.

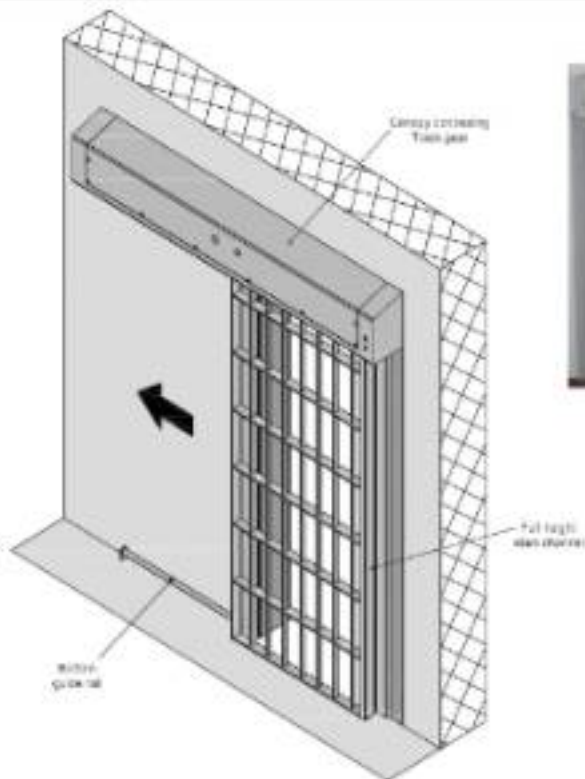
Finish

- One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

- Galvanneal.
- Polyester Powder Coated.
- Any arrangement of side or header panels can be provided.





Specifications

- Gate panel conforms to ASTM A627.
- Constructed from 2 1/4" x 3/8" flat steel bar framing and horizontals with 7/8" diameter double ribbed interlocking vertical bar.
- Steel subframe fixed to door opening incorporating a full height steel channel and bottom guide rail.
- Manual or electronically driven top track.
- Mechanical frame mounted lock for manual sliding gates or electronic locking for electronically driven gates to ASTM F1845-05.
- Lockable pressed steel canopy incorporating track gear.
- Canopy incorporates a mechanical unlock / override facility for electronically driven gates.

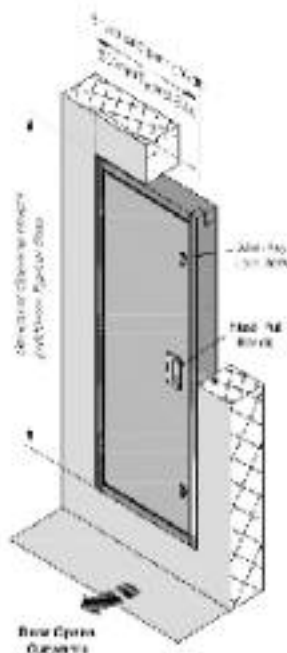
Finish

- One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

- Available right or left hand.
- Tool resistant anti-cut double ribbed round and flat bars to ASTM A627-02.
- Road gear aperture.
- Canopy can incorporate status indicator lights to show open, locked and in travelling positions for electronically driven gates.
- Electronic controls to control multiple gates.





Specification

- Door is constructed from a 54mm thick solid timber core blank with hardwood lipping to all edges.
- Door is mounted within a hardwood profile frame and hung on 5 No. x 130mm butt hinges.
- Frame fixings to suit a variety of opening construction.
- Recessed handle outside.
- Two allen key bolt locks.

Finish

- * One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

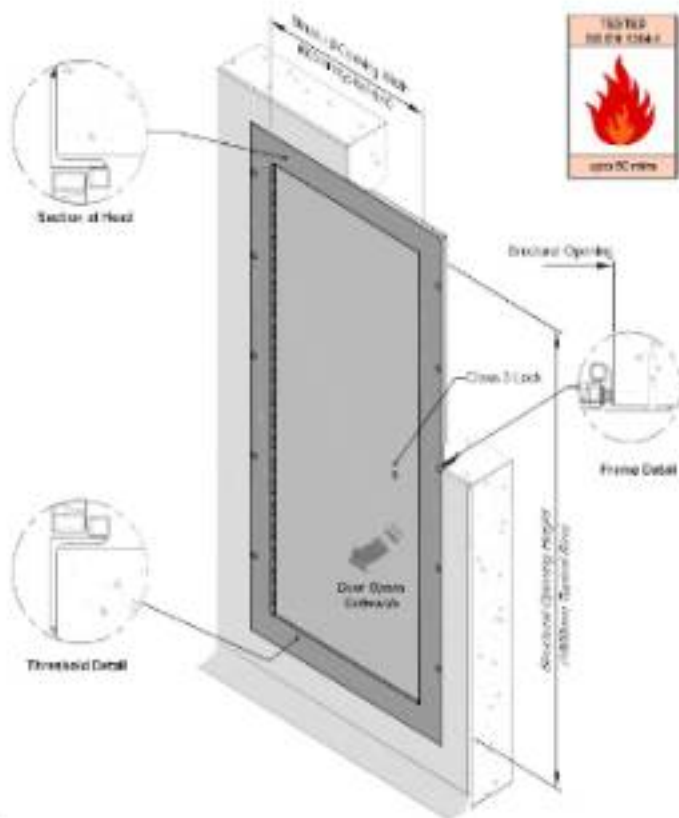
- * Vaneer finish.
- * Double door arrangement.
- * Smoother scale.
- * Continuous hinges in lieu of butt hinges.



Service Duct Door

POURCE STATION / JAIL / DISTRIBUTION

control and separation solutions



Specification

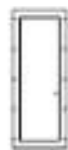
- Door panel constructed from 88mm wide rolled hollow steel sections with 2mm thick steel door skins seam welded along all edges.
- 80 minutes fire rated from within the service duct.
- Mineral wool insulation to all internal voids.
- Full height continuous hinge.
- Four sided rolled steel angle frame fixed with heavy duty expansion bolts.
- Supplied with or prepared for Class 3 lock.

Finish

- One coat factory applied high build zinc phosphate primer to all mild steel surfaces.

Options

- Double leaf doors with central mullion.
- Smoke seals.





Cell Security Limited provide a comprehensive range of Custody Perimeter and Circulation Doors for areas where secure access and control are essential.

All doors when closed secure the area and allow custody officers to transfer detainees throughout custody. Built to a high specification, comply with the Home Office Standards for Police Stations, Magistrates Courts, Crown Courts, Prisons, HM Armed Forces, Customs and Excise, and any buildings that require a detention facility.

Doors are also available that meet Worldwide and European Standards.

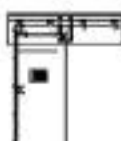
Doors are constructed to suit their application, and can either be a solid timber core with door skins bonded and riveted or an all welded steel construction, all are hung on a continuous or pivot hinges and supplied in a substantial steel frame. All welded steel doors are internally insulated with mineral wool.

Each door will either be supplied with, or prepared for, a secure Home Office approved custody lock. Where applicable, we can supply electronic lock releases remotely activated from the custody desk or control room to entry doors, secure lobby or corridor doors.



CSL0201

Entrance Door (PER)
Police Station



CSL0202

Sliding Door
Police Station / Jail



CSL0203

Pass / Exercise Yard Door
Police Station / Magistrates Court
Crown Court (Type Ba & Bb)



CSL0204

Perimeter Door
Magistrates & Crown Court
(Type Bc)



CSL0205

Dock Entry Door
Crown Court (Type G)



CSL0206

60 Minute Fire Resisting Door
Police Station / Magistrates & Crown
Court / Armed Force / Customs & Excise



CSL0207

**Glazed 60 Minute Fire Resisting
Door Custody Screen**
Police Station



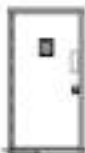
CSL0208

Custody Fire Escape Door
Police Station / Magistrates Court



CSL0209

Single Action Corridor Door
London Police Station (S016)



CSL0210

Double Action Corridor Door
London Police Station (SDS)



CSL0212

English Circulation Door
Prison



CSL0213

Circulation Door
Preparation for palm reader &
audio visual unit
Irish Prison



CSL0214

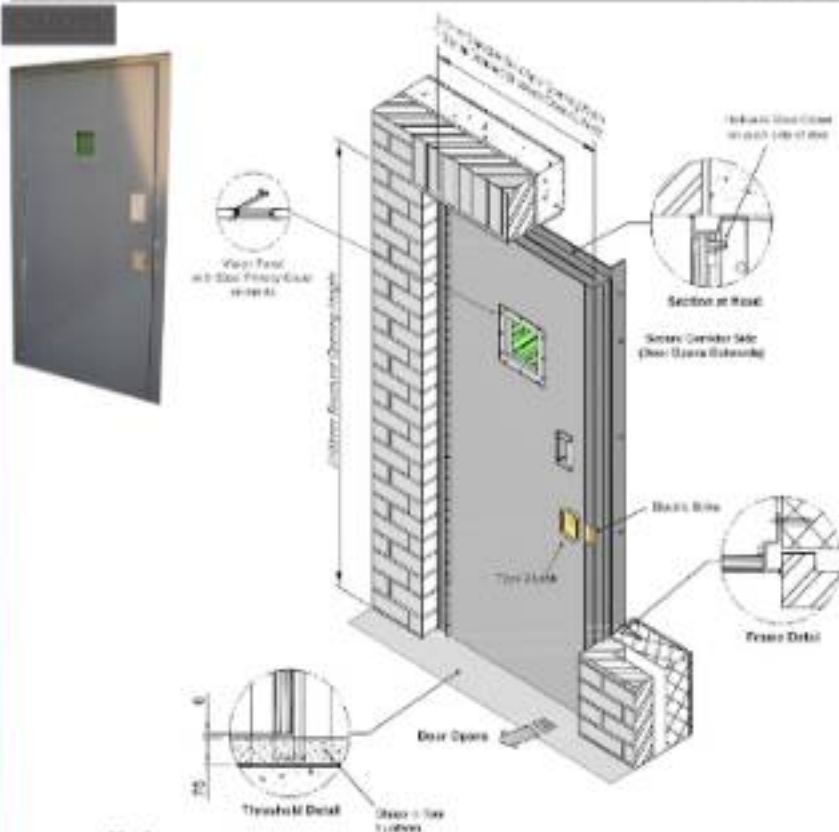
C & R Door
Prison



Entrance Door

PRISON STATION (PSP)

controlled and perimeter solutions



Specification

- Door is constructed from a solid timber core sheathed both sides with 1.6mm thick zinc-coated steel skins pressure bonded to core, interlocked and riveted to give a finished door thickness of 50mm.
- Door is mounted within a 100mm x 50mm rolled steel channel frame and hung from a substantial continuous hinge.
- Frame fits to suit a variety of opening construction.
- Supplied as standard with 150mm square x 20mm thick laminated glass vision panel with hinged steel privacy cover.
- Recessed pull handles on both sides of door.
- Home Office Type 2 heavy duty mortice deadlock working in conjunction with a 12V DC electric strike fitted in the frame with optional closer.

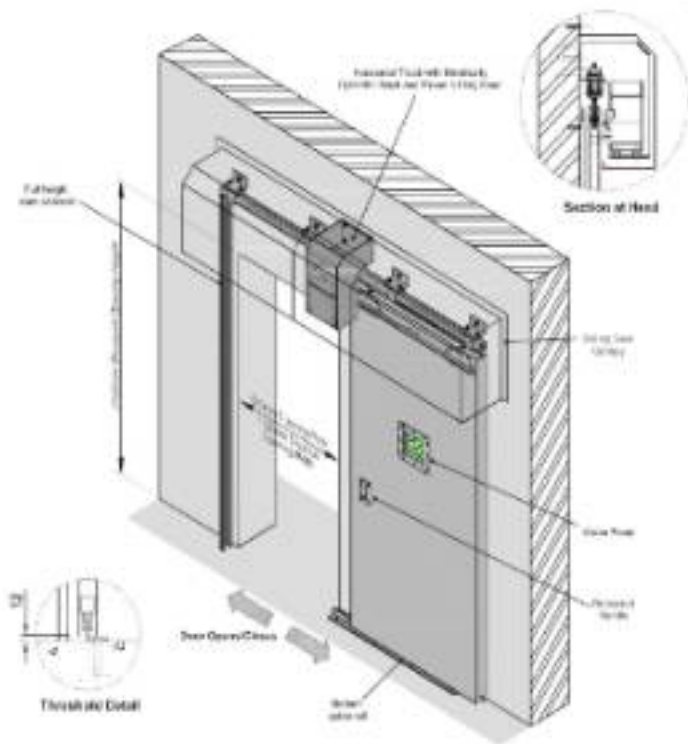
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Rolled steel angle frame or profile frame to suit site conditions.
- Drop strip / water bar on external doors.
- Weather seals.
- Vertical louvered viewer.
- Circular glass free viewer.



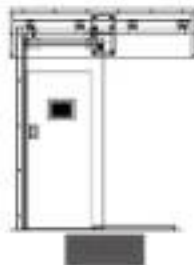


Specification

- Door constructed from a 40mm wide steel hollow section framework sheathed both sides with 3mm thick steel skins seam welded.
- Mineral wool insulation to all internal voids.
- Door panel hung on pulley wheels with roller bearings and mounted within a horizontal steel top track.
- Two recessed pull handles.
- Bottom guide rail.
- Supplied as standard with a 150mm square x 3.3mm thick laminated glass vision panel.
- Supplied with a full height slam channel and interlocking angles, securing door when in closed position.
- Remotely operated electric motor with rack and pinion gear.
- Supplied as standard with motor / track canopy.

Finish

- One coat factory applied high build zinc phosphate primer.

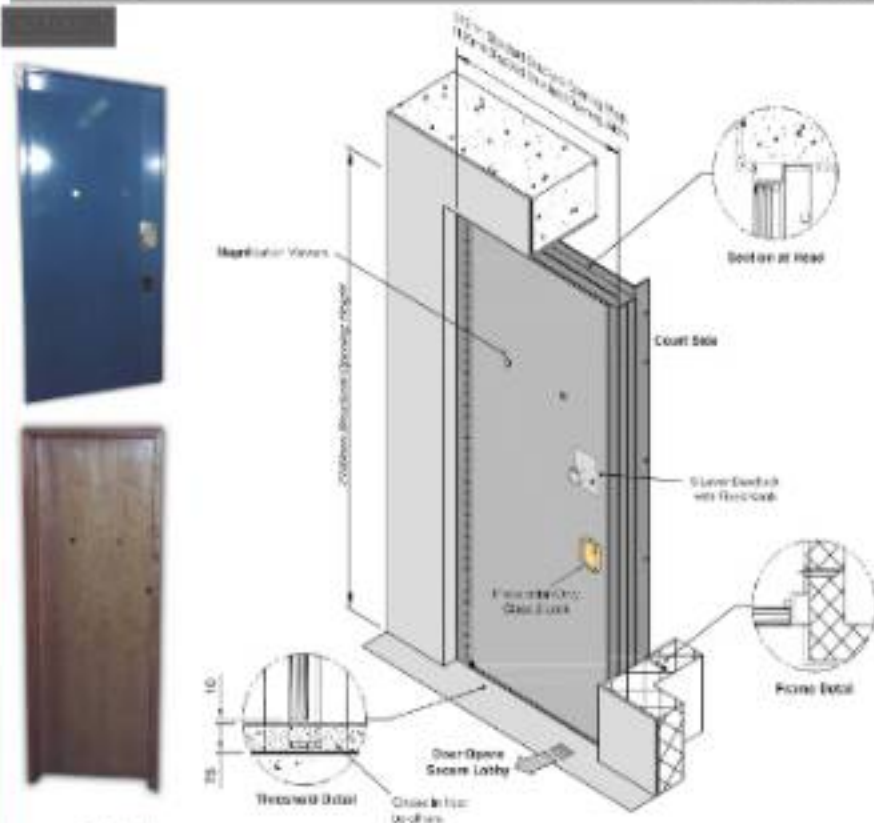


Dock Entry Door

CRIMINAL COURT (TYPE 2)

CellSecurity.co.uk

custodial and detention solutions



Specification

- Door leaf constructed from a solid timber core sheathed both sides with 1.8mm thick zinc-plated steel skins pressure bonded to core, interlocked and riveted to give a finished door thickness of 50mm.
- Door leaf mounted within a 100mm x 50mm rolled steel channel frame and hung from a substantial continuous hinge.
- Frame fixings to suit a variety of opening constructions.
- Supplied as standard with two magnification viewers to provide viewing from either side.
- Five lever mortice deadlock, one fixed knob handle to secure side only.
- Preparation for a HMCS Class 2 heavy duty mortice deadlock supplied and fitted by HMCS on site.

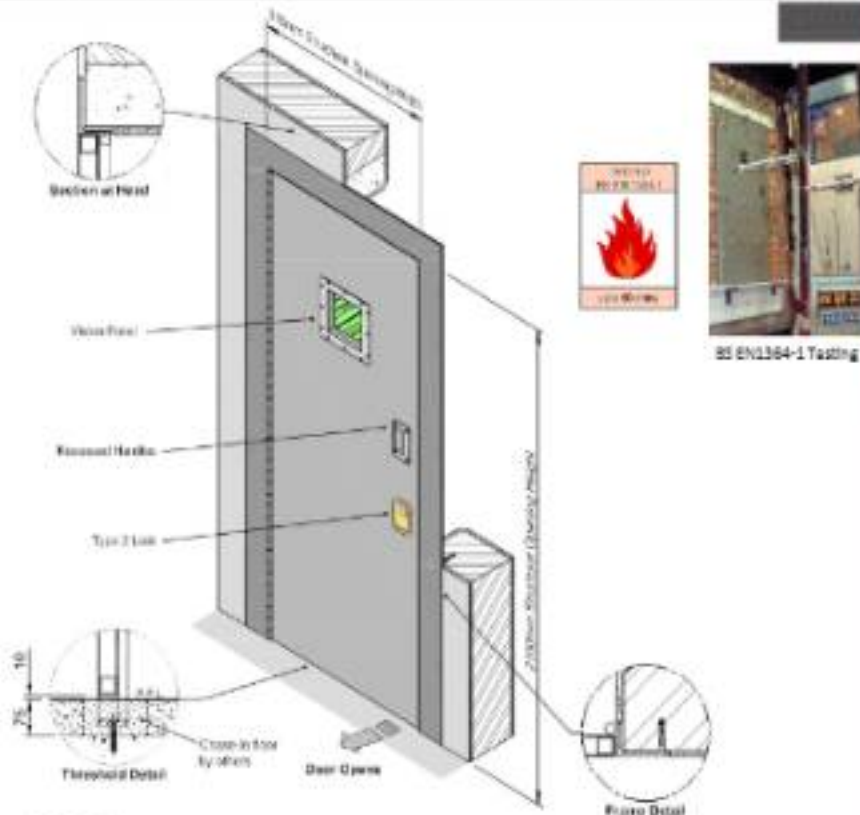
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Door leaf can be varnished both sides to match courtroom panelling.
- Rolled steel angle or pressed profile frame to suit site conditions.
- Fire rated version available.





Specification

- Tested in accordance with BS EN 1364-1 to give up to 60 minute fire resistance, the door is constructed from 40mm wide rolled hollow steel section with 5mm thick steel door skins.
- Mineral wool insulation to all internal voids.
- 125mm x 75mm x 5mm rolled steel angle frame.
- Frame fixings to suit a variety of opening constructions.
- Door panel mounted within door frame hung on a substantial continuous hinge.
- Recessed handles on both sides of door.
- Home Office Type 3 heavy duty mortice deadlock.
- 150mm square vision panel with fire resisting laminated glass.

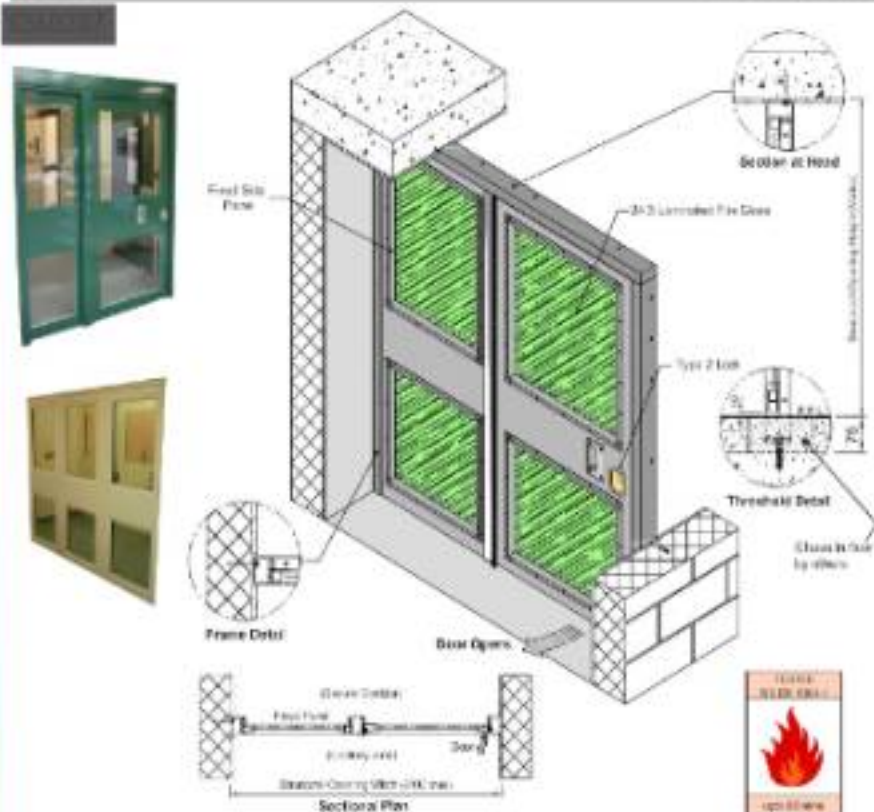
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Hinged privacy cover to vision panel.
- Hydraulic door closer.
- Type 1 Cell Lock.
- 12V DC electric strike.
- Smoke seals.
- Veneer finish.





Specification

- Treated in accordance with BS EN 1364-1 to give up to 60 minute fire resistance.
- Door and fixed panels are constructed from 40mm wide steel hollow section framework sheathed both sides with 5mm thick steel skins, mounted within a 100mm x 60mm rolled hollow section frame.
- All glazing is laminated, fire resisting and complies with BS 5544:1978 specification for anti-burst glazing.
- The door is hung from a substantial continuous hinge.
- Finings to suit a variety of opening constructions.
- The door is supplied as standard with a recessed pull handles on both sides of the door and fitted with a Home Office Type 2 heavy duty mortice deadlock.

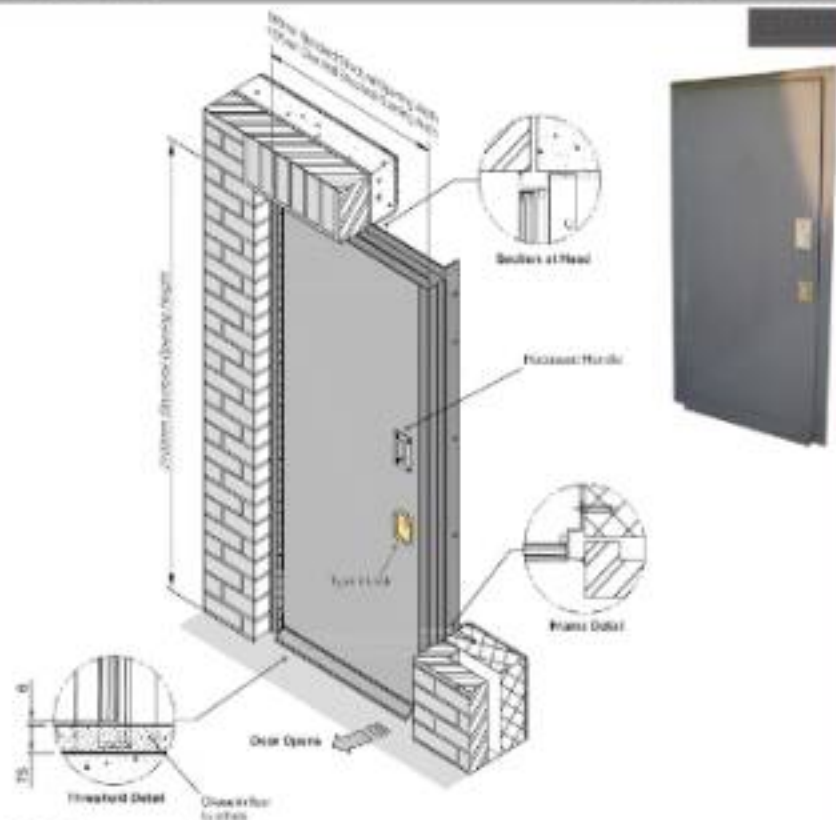
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Home Office Type 1 slim section cell lock.
- Smoke seals.
- Hydraulic door closer.
- 12V DC electric strike.





Specification

- Door is constructed from a solid timber core sheathed both sides and all edges with 1.6mm thick zinc steel skin pressure bonded to core, interlocked and riveted to give a finished door thickness of 50mm.
- Door is mounted within a 100mm x 50mm rolled steel channel frame and hung from a substantial continuous hinge.
- Frame fixings to suit a variety of opening construction.
- Recessed handles on both sides of door.
- Drip strip on outside face of door, weather bar threshold.
- Home Office Type 2 heavy duty mortice deadlock.

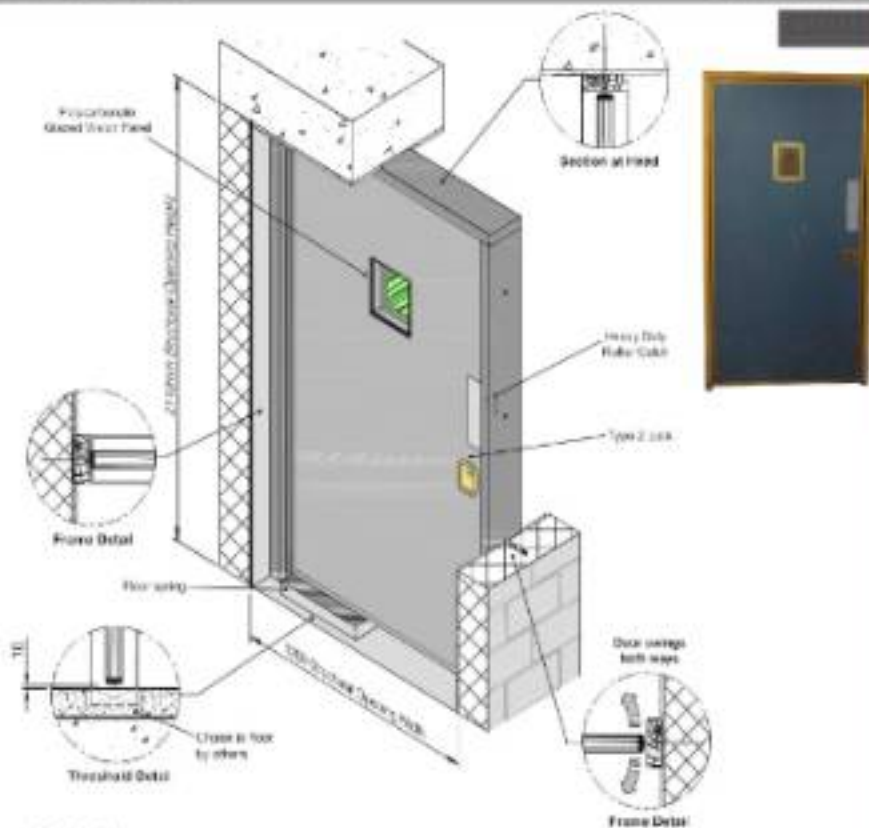
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Rolled steel angle frame or pressed profile frame to suit site conditions.
- Hydraulic door closer.
- 22V DC electric strike.
- Weather seals.
- Vision panel.





Specification

- Door is constructed from a solid timber core sheathed both sides with Armaglass panels with Ash tipping to all four edges, giving a finished door thickness of 80mm.
- Door is mounted within an Ash frame and pivots on a double action floor spring set into the floor.
- Frame fixings to suit a variety of opening construction.
- Supplied as standard with a 215mm x 250mm x 6mm thick polycarbonate vision panel.
- Heavy duty adjustable roller catch.
- Push plates both sides.
- Heavy DFRiso Type 2 heavy duty mortice deadlock.

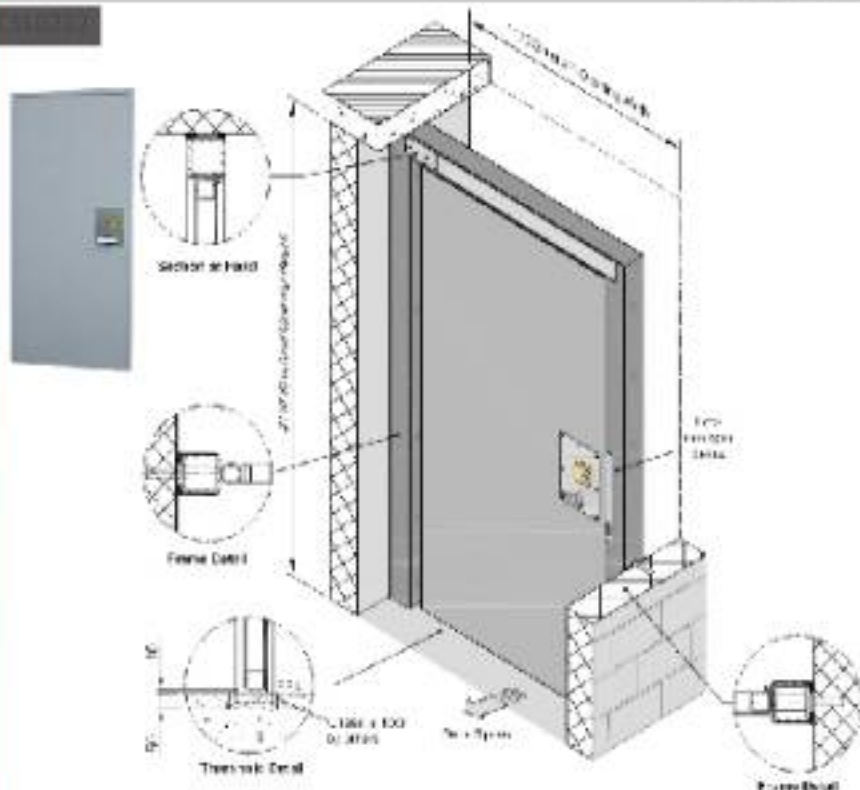
Finish

- Armaglass to any colour within the BS 4800 colour range.
- All timber to have two coats of water-borne varnish.

Options

- Bricks and / or intumescent seals.
- 24.5mm Pyrobel laminated glass (non-certified 60 minute fire rated).





Specification

- Door constructed from a 40mm wide steel hollow section framework sheathed both sides with 2mm thick steel skins seam welded.
- Mineral wool insulation to all internal voids.
- Door panel mounted within a steel hollow section frame and hung from a full height tubular steel pivot hinge, and is fixed with chemical resin anchors.
- Preparation for a Mil Class 1 electric lock or Mil Class 2 heavy duty mortice deadlock supplied and fitted by HVS or site.

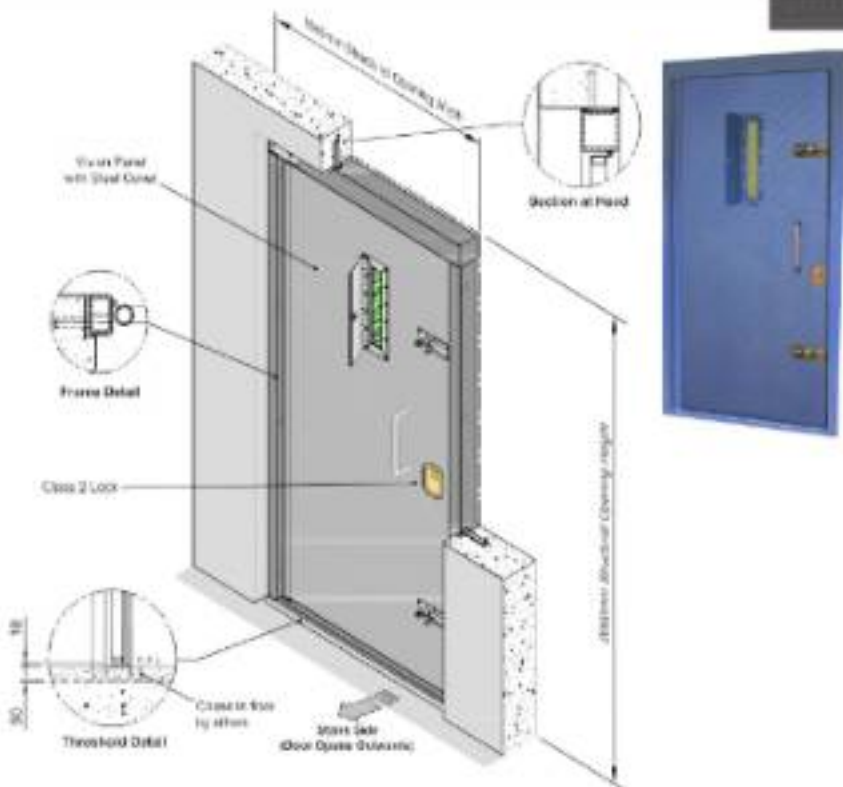
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- If required the header is provided with a removable panel to allow access to electrical wiring. (All removable panels are secured with tamper resisting screws, tamper proof switches can be supplied fixed and wired by others to monitor glass removal).
- Vision panel.





Specification

- Door leaf constructed from 50mm wide rolled hollow steel section with 2mm thick steel door skins.
- Mineral wool insulation to all internal voids.
- Steel hollow section door frame.
- Frame fixed by chemical resin anchors.
- Door leaf mounted within door frame and hung on a full height tubular steel pivot hinge.
- One welded D handle, two heavy duty barrel bolts.
- Rectangular laminated glass vision panel with hinged steel cover.
- Preparation for a Met Class 2 heavy duty prison mortice deadlock supplied and fitted by HMPs on site.

Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Cast in type frame.
- Smoke seals.





Cell Security Limited provide a comprehensive range of personnel doors for specific areas where the highest security and resistance to abuse is essential.



CSL0901
Surgeon / Medical Door
Police Station



CSL0902
Search Room Door (SRCH)
Police Station



CSL0903
Solid Timber Door
Police Station (PLC)
Crown Court (Type C)



CSL0904
Half Glazed Timber Door
Police Station (PLB)
Crown Court (Type D)



CSL0905
Acoustic Door (39 or 44 db)
Police Station



CSL0906
Acoustic Door (55db)
Police Station



CSL0907
Steel Personnel Door
Police Station



CSL0908
Decency Door
Police Station (PMA)
Crown Court (Type E)



CSL0909
Armoury Door
Police Station / Armed Forces



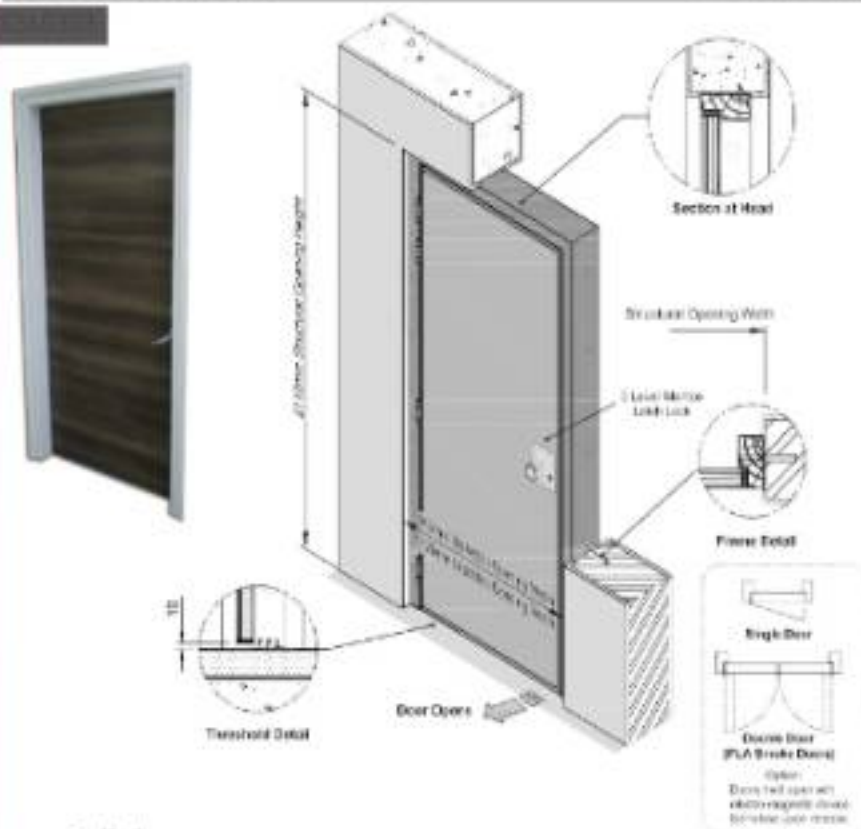
CSL0910
Strongroom Door
Police Station / Armed Forces

Solid Timber Door

POWELL STATION (G04) / POWELL COURT (T10) (2)

CellSecurity.co.uk

controlled and separation solutions



Specification

- Door is constructed from 54mm thick solid timber core faced both sides with plywood veneer and 9mm lipping to vertical and horizontal edges.
- Door is mounted within a hardwood profile frame and is hung from 4 No x 120mm triple knuckle butt hinges.
- Frame fittings to suit a variety of opening construction.
- 5 lever mortice locking latch operable from both sides.

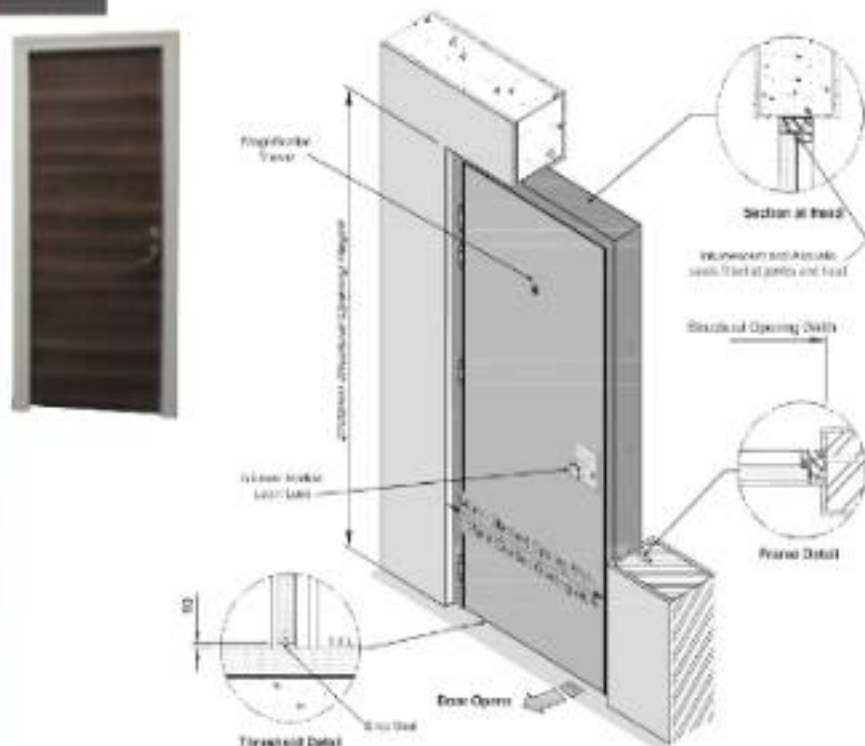
Finish

- One coat factory applied primer.

Options

- Steel profile frame.
- One coat varnish finish instead of primer.
- Veneer finish.
- Hydraulic door closer.
- Anti-ligature hardware.
- Vision panel.
- Push ring handle(s) instead of knuckle furniture.
- 60 minute fire rating.
- Double door arrangement.
- Electro-magnetic hold open closer.
- Vertical louvre vision.





Specification

- Door is constructed from a 54mm solid timber core faced both sides with plywood veneer and 9mm liping to vertical and horizontal edges.
- Door is mounted within a hardwood profile frame and is hung from 4 No x 120mm triple knuckle butt hinges.
- Frame fittings to suit a variety of opening construction.
- Acoustic and intumescent seals with rubber fins to all rebates.
- Drop seal to bottom edge of door.
- Magnification Viewer.
- A lower monitor locking latch operable from both sides.

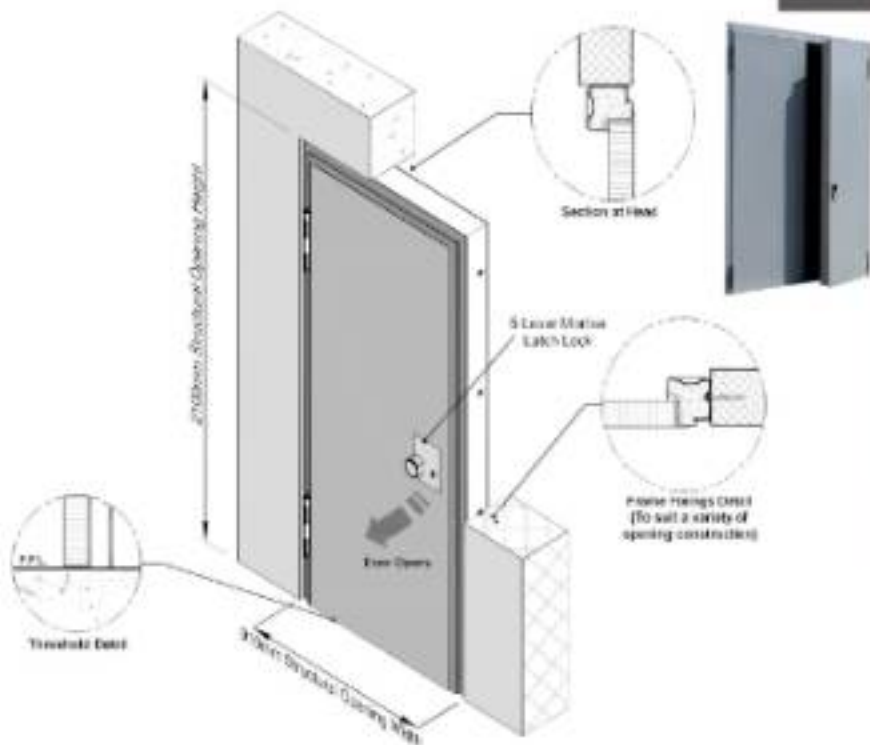
Finish

- One coat factory applied primer.

Options

- Available in 39db or 44db rating.
- One coat varnish finish instead of primer.
- Veneer finish.
- Anti-fisture hardware.
- Flush ring handles instead of knob furniture.
- 60 minute fire rating.
- Intumescent seals and/or smoke seals.
- Hydraulic door closer.





Specification

- Door is constructed from a 80mm leaf with a range of corner and angle rebata frame profiles.
- 150mm x 20mm diameter heavy duty hinges (2 per leaf).
- Frame fixings to suit a variety of opening construction.
- Acoustic and intumescent seals with rubber fins to all rebates.
- Drop seal to bottom edge of door.
- 5 lever mortice locking latch operable from both sides.

Finish

- One coat factory applied primer.

Options

- One coat enamel finish instead of primer.
- Flush ring handles instead of knob furniture.
- Intumescent seals and/or smoke seals.
- Hydraulic door closer.

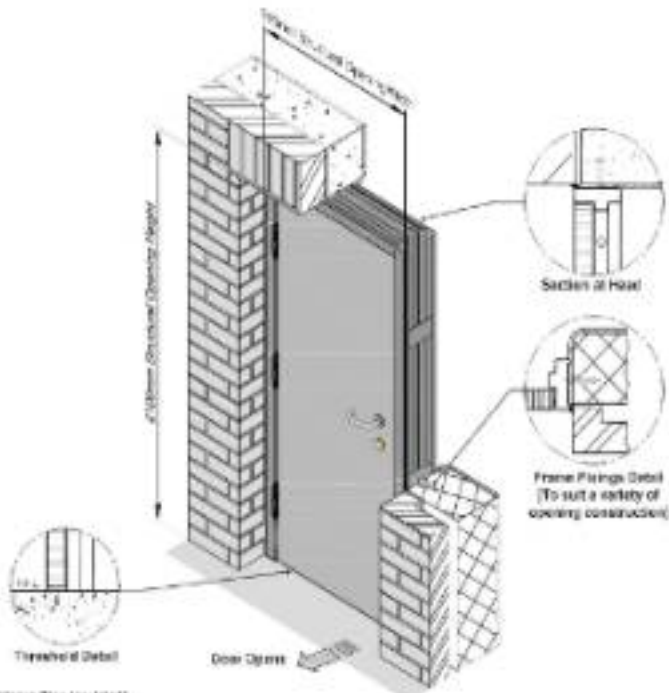


Steel Personnel Door

POLICE STATION (PRISM) / CRIMINAL COURT (TYPE 2)

CellSecurity.co.uk

custodial and detention solutions



CCL02076 - 300 minute Fire Resistance (Door-insulated)

CCL02079 - 300 minute Fire Resistance UFS SRD

CCL02077 - 300 minute Fire Resistance UFS SRD

CCL02070 - 300 minute Fire Resistance UFS SRD

Specification

- Door leaf constructed from 1.3mm thick zinc coated steel skins bonded to a honeycomb or rigid thermally-insulating core.
- Door leaf is mounted within a 1.8mm thick zinc coated steel double rebata frame and is hung from 3 or 4, stainless steel, ball bearing butt hinges.
- Reinforcing fitted within the door frame to suit various inventory options. "T" section extragal provided on double doors. 2.5mm heavy duty reinforcing channel incorporating an adjustable bottom rail allowing 18mm of height adjustment for uneven floors or smoke control purposes on fire resisting doors.
- Additional locking functions, attack skins and reinforcing on Gold and Silver doors.

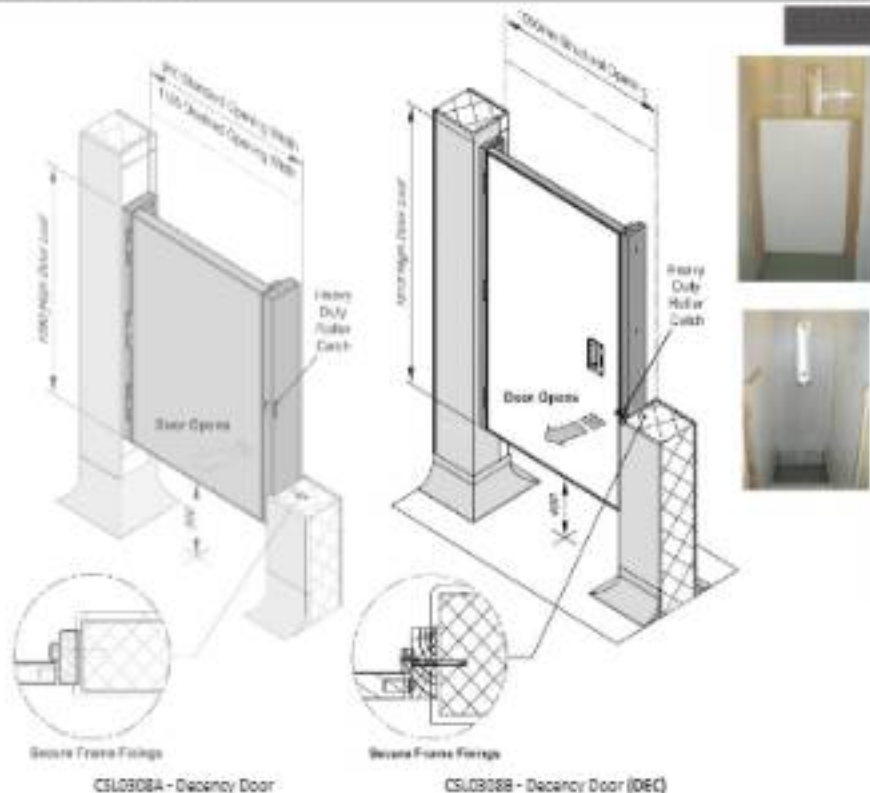
Finish

- One coat factory applied primer.

Options

- Special frame to give up to 50mm width adjustment.
- 1 1/2 pairs or double leaf door sets.
- Over / side panels.
- Anti-ligature hardware.
- Threshold.
- Squares / rectangular / circular windows.
- Weather / smoke seals.
- Louvers.
- Factory finished to any R.S. or R.A. colour.





Specification

- Door is constructed from a 44mm thick solid timber core faced both sides in Formica with Ash lipping to all four edges.
- Door is mounted between two Ash posts and hung on three 100mm brass butt hinges.
- Frame fixings to suit a variety of opening construction.
- Supplied as standard with a heavy duty adjustable roller catch.

Finish

- White Formica to door faces.
- All hardwood to have two coats of water-borne varnish.

Options

- Different coloured Formica to match site colour scheme.

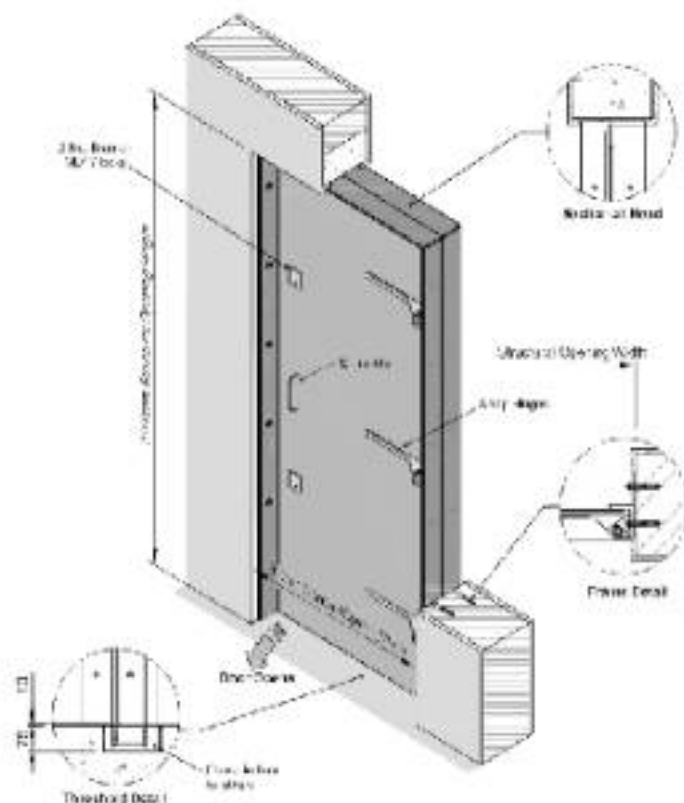


Armoury Door

PRISON STATION

CellSecurity.co.uk

controlled and separation solutions



Specification

- Door leaf is constructed from 10mm 10S thick glass.
- Frame constructed from 100 x 75 x 10 RSA and 100 x 10 flat.
- Leaf hung on 5 No. strap hinges complete with 10 pins.
- Supplied with 2 No. branch locks.
- Fitted with 'O' handle welded to outside.
- Dog bolts fitted to inside to prevent leaf removal.
- Frame fixings to suit a variety of opening constructions.
- Constructed to comply with The Home Office Prison Security Handbook 2005 and Health & Safety Executive Circular to Chief Officers of Police (No 1/2005).

Finish

- One coat factory applied high build zinc phosphate primer.



Grille Gates

SECTION 4

CellSecurity.co.uk

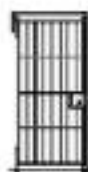
custody and detention solutions

Cell Security Limited provide a comprehensive range of Custody Grille Gates for cell or circulation corridors where the highest security and visual surveillance is essential.

All gates when closed secure the detention area. Built to a high specification, comply with the Home Office Standards for Police Stations, Magistrates Courts, Crown Courts, Prisons, HM Armed Forces, Customs and Excise, and any buildings that require a detention facility.

Gates are a welded construction from substantial steel bars and hung on a pivot hinges.

Each gate will either be supplied with, or prepared for, a secure Home Office approved custody lock. Where applicable, we can supply electronic lock releases remotely activated from the custody desk to control circulation.



CSLD401

Medium Duty Gate

Police Station / Magistrates Court
Armed Forces



CSLD402

Medium Duty Gate & Fixed Panel

Police Station / Magistrates Court
Armed Forces



CSLD403

Heavy Duty Gate (GAT)

Police Station (PSP) / Magistrates Court
Crown Court (Fa) / Prison



CSLD404

Heavy Duty Gate with Side Panel (GAT)

Police Station (PSP) / Magistrates Court
Crown Court (Fa) / Prison



CSLD405

Heavy Duty Gate

Prison



CSLD406

Surface Mounted Heavy Duty Gate

Prison



CSLD408

Overhead Sliding Gate

Prison



CSLD409

Manhole Gate

Prison



CSLD410

Heavy Duty Gate (Type A)

Prison



CSLO411
Heavy Duty Gate (Type C)
Prison



CSLO412
Heavy Duty Gate (Type M)
Prison



CSLO413
Sliding Gate
Police Station / Jail

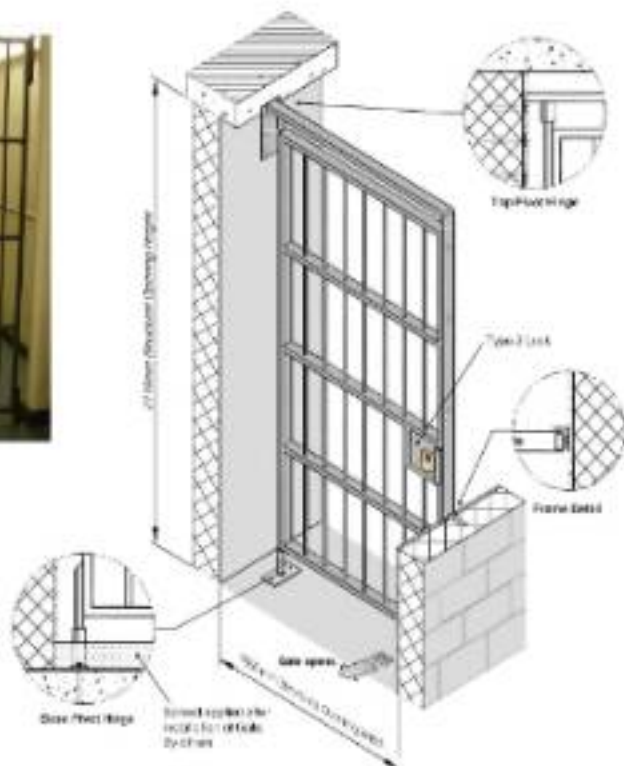


Medium Duty Grille Gate

POWICE STATION / MAGISTRATES COURT / JAILHOUSE

CellSecurity.co.uk

control and detention solutions



Specification

- Gate is constructed from 50mm wide steel RHS Framework with 20mm diameter solid vertical bars.
- Mounted on strong pivot hinges.
- Frame hinges to suit a variety of opening construction.
- Home Office Type 2 heavy duty mortice deadlock.

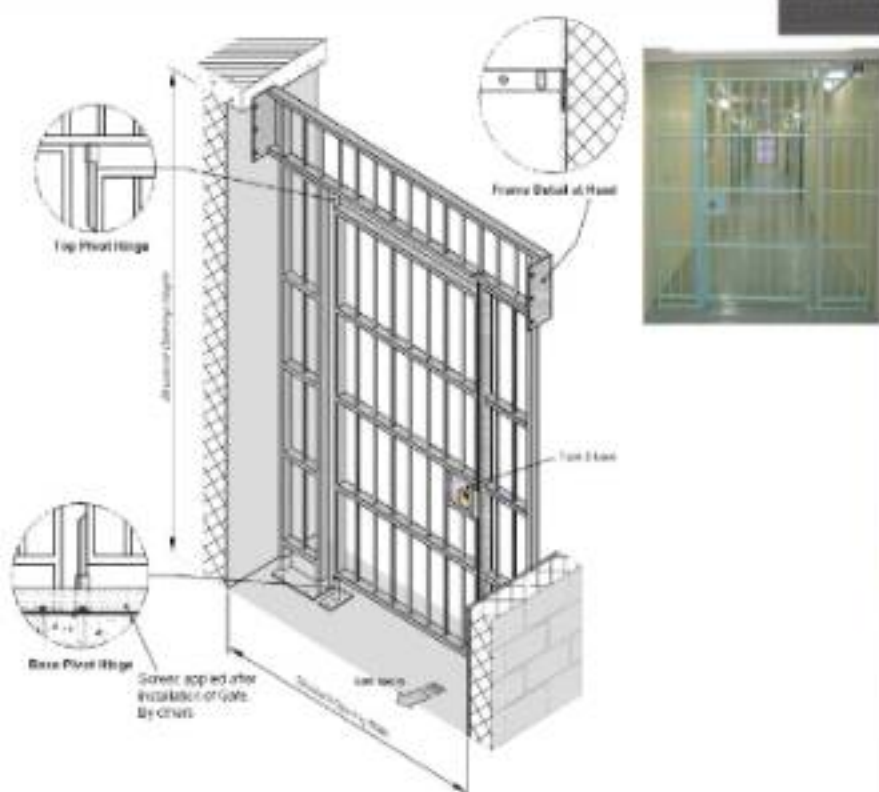
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Surface mounted on 'Outside' of opening.
- Electric release to lock.
- Hydraulic Door Closer.
- Galvanised Finish.





Specification

- Gate is constructed from 50mm wide steel RHS framework with 20mm diameter solid vertical bars.
- Mounted on strong pivot hinges.
- Frame fixings to suit a variety of opening construction.
- Home DRiso Type 3 heavy duty mortice deadlock.

Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Any arrangement of header / side panels to suit requirements.
- Double leaf gate with joggle bolts.
- Ringed side panel.
- Electric release to lock.
- Hydraulic Door Closer.
- Galvanised finish.

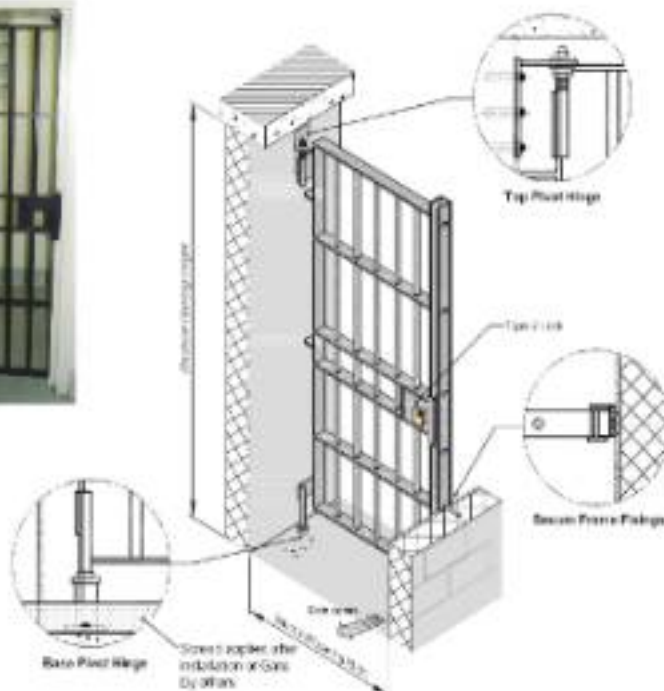


Heavy Duty Gate

POUNCE STREET (247) / MAGISTRATES COURT / CROWN COURT (24) / PRISON

CellSecurity.co.uk

control and perimeter solutions



Specification

- Gate is constructed from 65mm x 12mm flat steel framework with 30mm diameter solid vertical bars.
- Mounted on Home Office pattern pivoting hinges.
- Frame fits to suit a variety of opening construction.
- Home Office Type 1 heavy duty mortice deadlock. (Except when gate used in Prisons or Crown Courts where the lock is supplied and installed by HMPS).

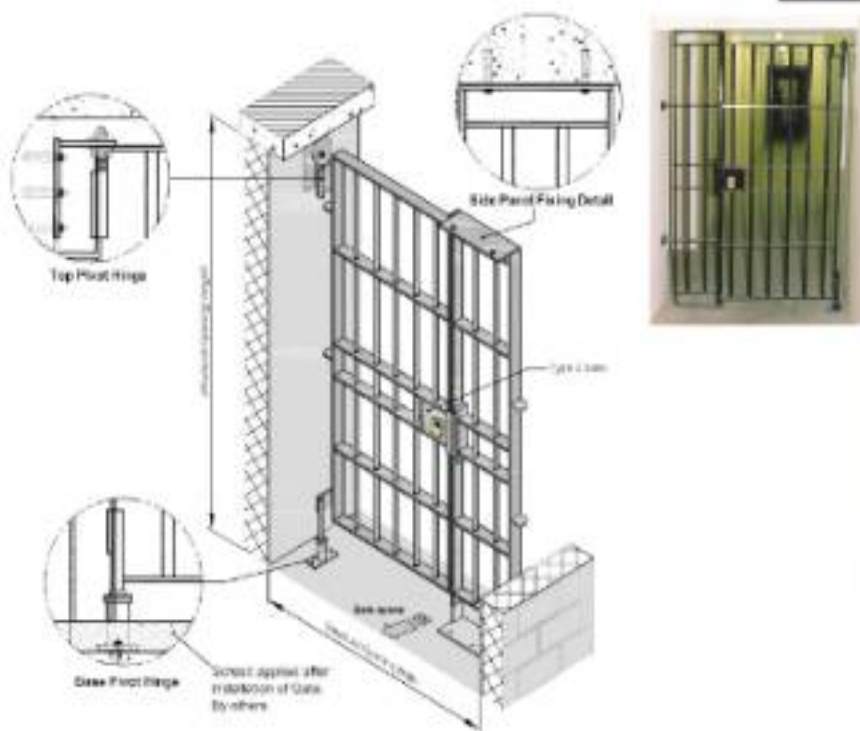
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- 12V DC electric strike.
- Hydraulic door closer.
- Galvanized Finish.





Specification

- Gate is constructed from 85mm x 12mm flat steel framework with 30mm diameter solid vertical bars.
- Mounted on Home Office pattern pivot hinges.
- Frame fixings to suit a variety of opening construction.
- Home Office Type 2 heavy duty mortice deadlock. (except when gate used in Prisons or Crown Courts where the lock is supplied and installed by HMPS).

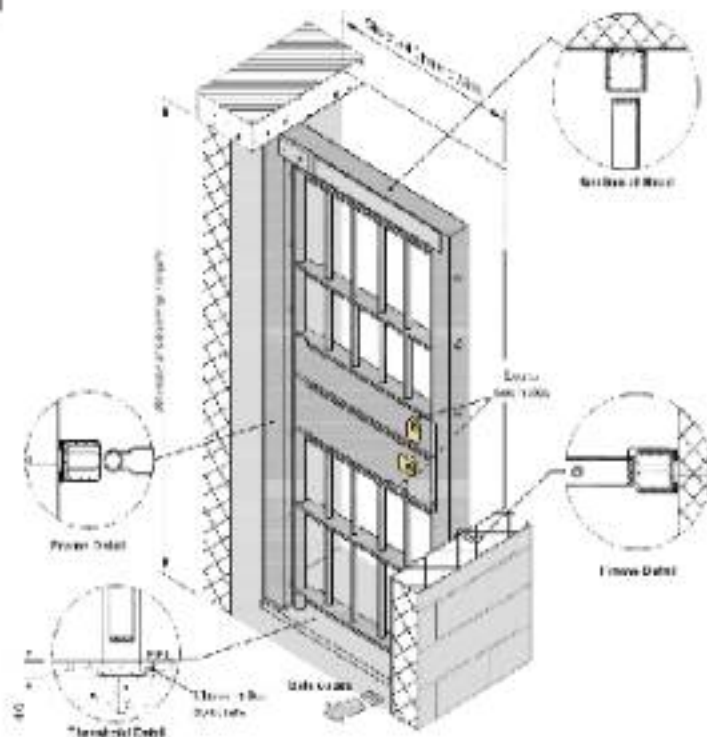
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Any arrangement of side or header panels can be provided.
- 12V DC electric strike.
- Hydraulic door closer.
- Double leaf gate with joggle bolts.
- Galvanneal finish.





Specification

- Gate constructed from a 60mm x 12mm steel flat framework with 30mm diameter solid steel vertical bars and mounted within a steel hollow section frame, fixed by chemical resin anchors and hung from a full height tubular steel pivot hinge.
- Both gate and frame can be supplied with preparation for any mechanical and electrical locking variation specified.
- The frame is provided with removable panels to allow access to electrical wiring. (All removable panels are secured with tamper resistant screws, tamper proof switches can be supplied fitted and wired by others to monitor plate removal).
- Locks and electrical components are supplied and fitted by others.

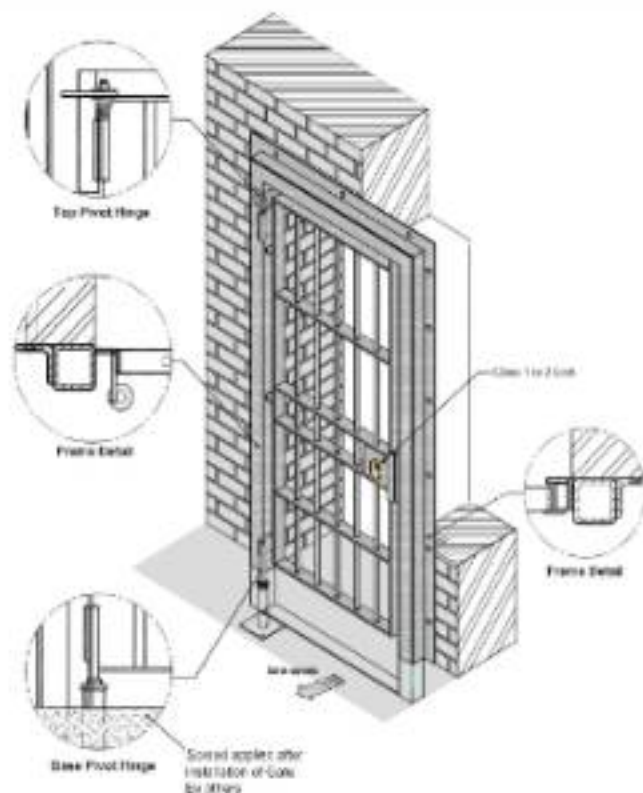
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Galvanised finish.





Specification

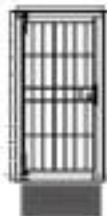
- Gate is constructed from 85mm x 12mm flat steel framework with 30mm diameter solid vertical bars.
- Mounted on Home Office pattern pivot hinges.
- The Gate is mounted within a RHS and RSA frame and is fixed by chemical resin anchors.
- Preparation for a Home Office Class 1 or 2 heavy duty monitor doorlock supplied and fitted by HMPS.

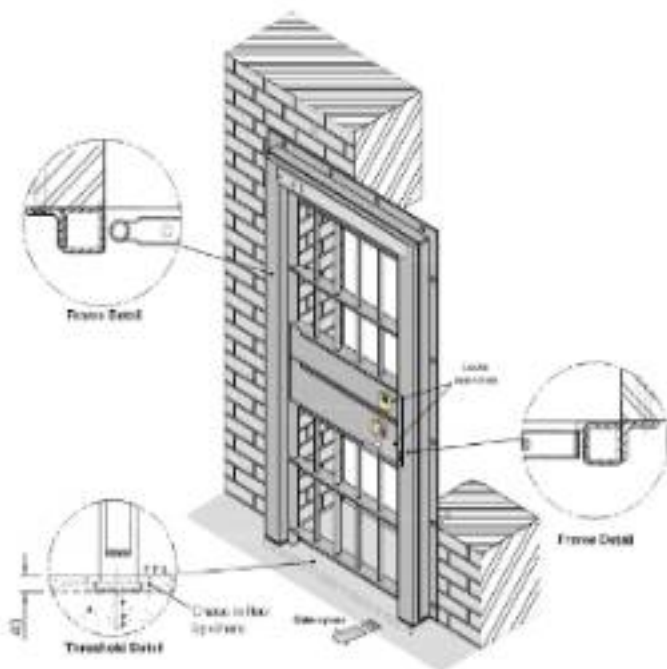
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Galvanneal finish.





Specification

- Gate constructed from a 65mm x 12mm steel flat framework with 30mm diameter solid steel vertical bars and mounted within a steel hollow section frame, fixed by chemical resin anchors and hung from a full height tubular steel pivot hinge.
- Both gate and frame can be supplied with preparation for any mechanical and electrical locking variation specified.
- The frame is provided with removable panels to allow access to electrical wiring. (All removable panels are secured with tamper resistant screws, tamper proof switches can be supplied fitted and wired by others to monitor plate removal).
- Locks and electrical components are supplied and fitted by others.

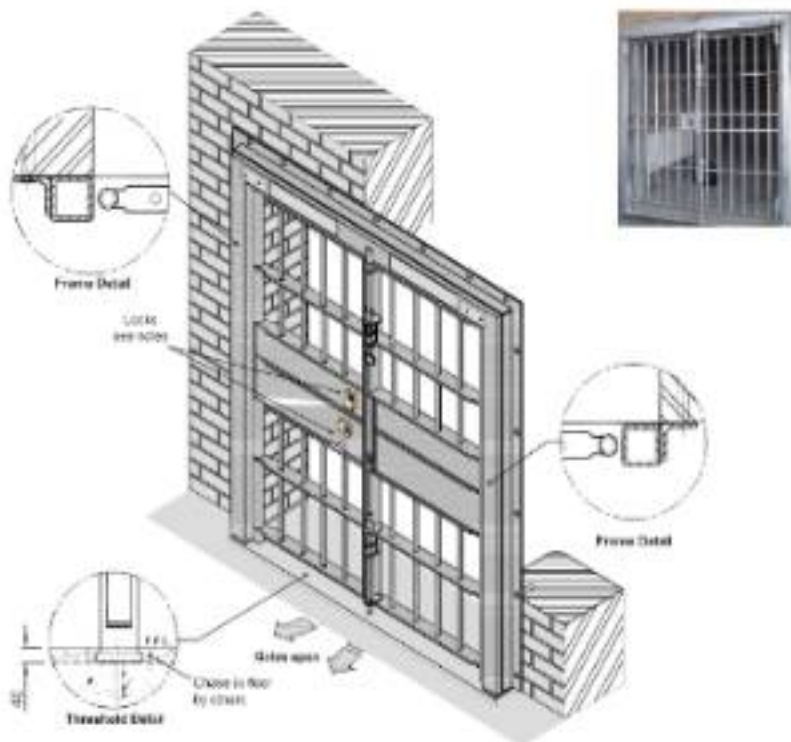
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Galvanneal finish.





Specification

- Gate constructed from a 65mm x 12mm steel flat framework with 50mm diameter solid steel vertical bars and mounted within a steel hollow section frame, fixed by chemical resin anchors and hung from a full height tubular steel pivot hinge.
- Both gate and frame can be supplied with preparation for any mechanical and electrical locking variation specified.
- The frame is provided with removable panels to allow access to electrical wiring. (All removable panels are secured with tamper resistant screws, tamper proof switches can be supplied fitted and wired by others to monitor plate removal).
- Locks and electrical components are supplied and fitted by others.

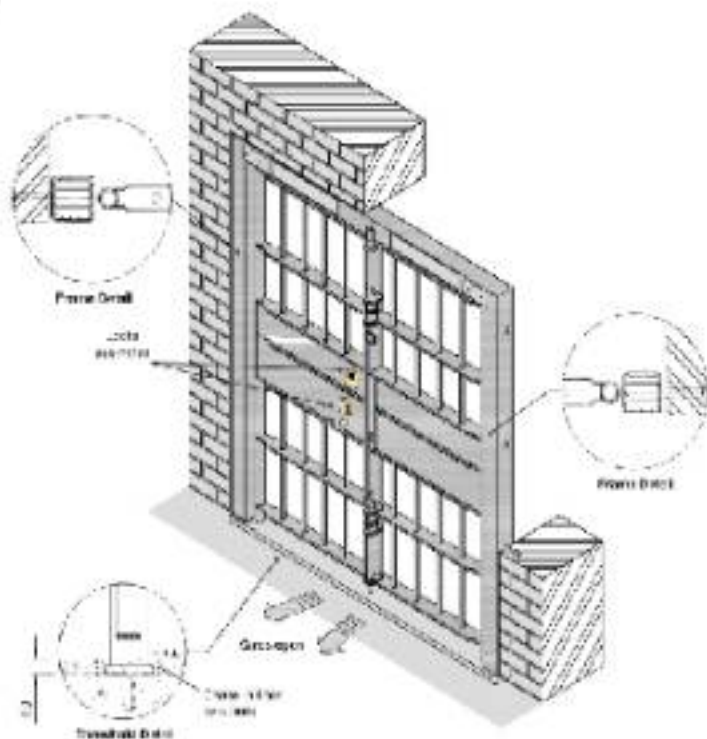
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Galvanneal finish.





Specification

- Gate constructed from a 65mm x 12mm steel flat framework with 30mm diameter solid steel vertical bars and mounted within a steel hollow section frame, fixed by chemical resin anchors and hung from a full height tubular steel pivot hinge.
- Both gate and frame can be supplied with preparation for any mechanical and electrical locking variation specified.
- The frame is provided with removable panels to allow access to electrical wiring. (All removable panels are secured with tamper resistant screws, tamper proof switches can be supplied fitted and wired by others to monitor plate removal).
- Locks and electrical components are supplied and fitted by others.

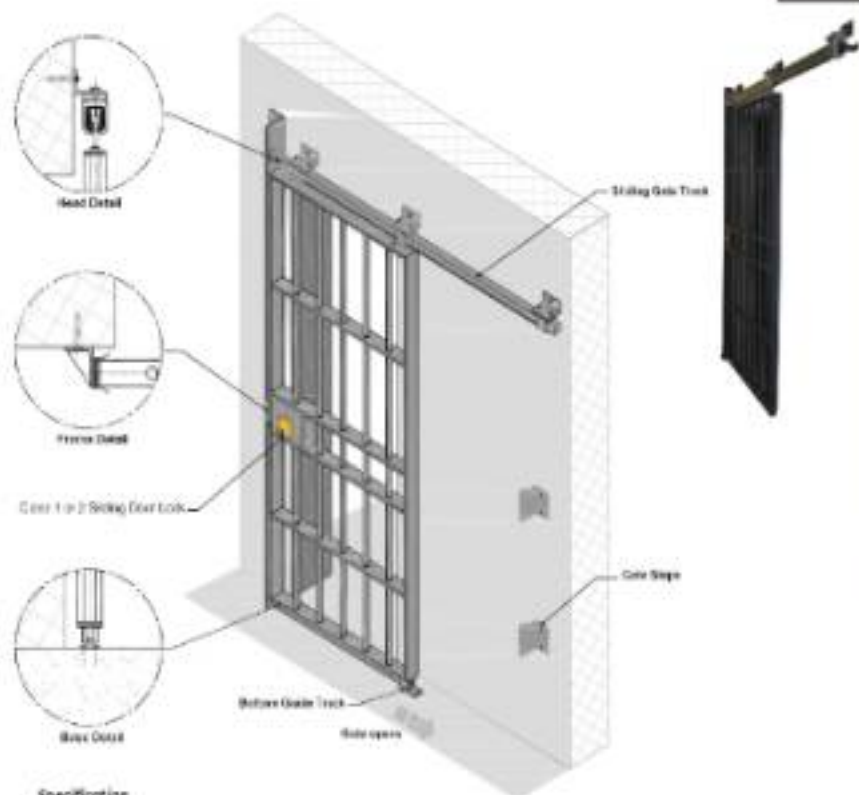
Finish

- One coat factory applied high build zinc phosphate primer.

Options

- Galvanised Finish.





Specification

- Gate constructed from 65mm x 12mm steel flat framework with 50mm diameter solid steel vertical bars.
- Full height steel angle steel post.
- Pressed steel sliding track with trolley hangers.
- Concealed bottom guide track.
- The gate is supplied as standard with a Class 1 or 2 hook bolt lock.

Finish

- One coat factory applied high build zinc phosphate primer.

Options

- A pressed steel canopy can be provided to conceal the sliding track gear.
- Galvanised finish.



Cell Security Limited provide a comprehensive range of detention furniture for Cell or Custody use.

All furniture is designed and built to a high specification and complies with the Home Office Standards for Police Stations, Magistrates Courts, Crown Courts, Prisons, HM Armed Forces, Custom and Excise and any buildings that has a detention facility.

Cell Benches & Beds



CSLS001
Lambeth Cell Bench



CSLS002
Holding Room Bench



CSLS003
Cell Bench



CSLS004
Low Level Cell Bench



CSLS005
Cell Bench Top



CSLS006
Crown Court Cell Bench



CSLS007
Secure Hospital Bed



CSLS008
Wall Fixed Cell
Single / Double Bunk Bed



CSLS009
Cell Double Bunk Bed



CSLS010
Wall Fixed Cell Single Bunk Bed



CSLS011
Wall Fixed Cell Double Bunk Bed



CSLS012
Cell Prison Double Bunk Bed



CSLS013
Single Prison Cell Bed



CSLS014
Double Prison Cell Bunk Bed



CSLS015
Triple Prison Cell Bunk Bed

Cell Wardrobes & Shelves



CSLOS10
Cell Wardrobe



CSLOS11
Open Cell Wardrobe



CSLOS12
Cell Shelving Unit



CSLOS13
Cell Shelf Unit With Snap Hooks



CSLOS14
Cell Shelf



CSLOS15
Ligature Resisting Snap Hooks

Chairs, Stools & Seats



CSLOS16
Interview Chair



CSLOS17
Plastic Cell Chair



CSLOS18
Single Steel Waiting Chair



CSLOS19
Multiple Steel Waiting chairs



CSLOS20
Visits Table / Chairs



CSLOS21
Folding Steel Stool



CSLOS22
Steel Stool



CSLOS23
Wall Mounted Steel Stool



CSLOS24
Timber Stool



CSL0539

Steel Mushroom Stool



CSL0540

Adjustable Height Photo Stool



CSL0541

Timber Peninsular Seat



CSL0542

Timber Island Seat



CSL0543

Timber Bench Seat



CSL0544

Timber Waiting Bench



CSL0545

Floor Mounted Pedestal Steel
Waiting Bench

CSL0546

Steel Waiting Bench With
Handcuff Hoops

CSL0547

Wall Mounted Steel Bench

Tables & Desks



CSL0550

Interview Table



CSL0551

Interview Table with Central Pedestal



CSL0552

Steel Cell Desk



CSL0553

Steel Cell Writing Table



CSL0554

Steel Cell Writing Table with
Combined Stool

CSL0555

Steel Cell Desk with Swivel Stool



CSL0556
Solid Surface Cell Desk



CSL0557
Picnic Table



CSL0558
4 Person Dining Table



CSL0559
6 Person Dining Table

Secure Cupboards & Gun Cupboards



CSL0570
Medical Cabinet



CSL0571
Medicine Cabinet



CSL0572
Medicine Safe



CSL0573
Gun Cabinets



CSL0574
Ammunition Cabinet



CSL0575
Secure Fire Cabinets

Secure Screens & Transfer Units



CSL0580
Interview Screen



CSL0581
Electronic Interview Screen



CSL0582
25mm Document Passing Tray



CSL0583
154mm Document Passing Tray



CSL0584
Electronic Transfer Units



CSL0585
Cell TV Cover



CSL0586
Charge Desk Monitor Cover



CSL0587
Mobile Workstation

Secure Ceilings



CSL0590
Secure Steel Ceiling



CSL0591
Secure Mesh Ceiling



CSL0592
Corian Bulkhead

Cell Bench

Lambeth Cell Bench

*Purpose*

A cell bench complying with the Home Office and Metropolitan Police specifications to meet the criteria for maintaining a safe, secure and functional cell bench within the environment of a Police cell.

Specification

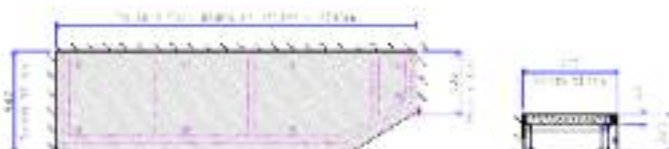
- Bench top is constructed from Corian solid surface material bonded to double 25mm thick Birch plywood sheet to give a finished thickness of 65mm with a special Home Office approved seating detail.
- Supporting steel underframe is constructed from RHS framework with 3mm thick stainless steel grased panels, the upper panel having ligature resisting perforations.

Finish

- Corian to be white.
- Stainless steel to be satin finished.

Options

- Non-perforated front panel if no under bench heating is required.



Holding Room Bench

Holding Room Bench

*Purpose*

A holding room bench complying with the Home Office specifications to meet the criteria for maintaining a safe, secure and functional bench within the environment of a police holding room.

Specification

- Bench top is constructed from Corian solid surface material bonded to double 25mm thick Birch plywood sheet to give a finished thickness of 65mm with a special Home Office approved seating detail.
- Supporting steel underframe is constructed from RHS framework with 3mm thick stainless steel grased front panels with ligature resisting perforations.

Finish

- Corian to be white.
- Stainless steel to be satin finished.

Options

- Non-perforated front panel if no under bench heating is required.



Cell Bench

Purpose

A cell bench historically used in Police Stations and Magistrates Courts.

Specification

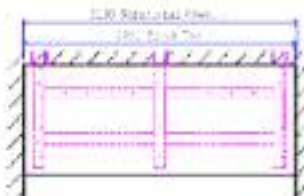
- Bench top is constructed from either 48mm thick iroko hardwood battens or from Corian solid surface material bonded to plywood sheet to give a finished thickness of 38mm.
- Underside of bench top is protected from heat generated by the heating pipes with a layer of 8mm thick heat resisting fibreboard.
- Supporting steel underframe is constructed from 80mm x 80mm x 6 rolled steel angles and 3mm thick mild steel graced panels, fully roboted all around to prevent passage of contraband.
- The two hinged panels allowing access to the heating pipes are held firmly shut by two security fixings.

Finish

- Timber bench top, two coats of water borne varnish.
- Corian in white. Other colours available at additional cost.
- Steelwork has one coat factory applied high build zinc phosphate primer.

Options

- Ash or Maple battens can be supplied.
- Corian supplied from a range of standard colours.
- Bench can be supplied any length.
- 800mm wide bench for use in Magistrates Courts.
- Fixed steel front without perforations for installations without heating.



Low Level Cell Bench

Purpose

A low level cell bench historically used for 'drunken prisoners'.

Specification

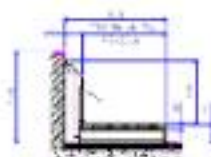
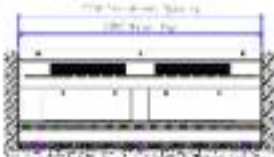
- Low level seating is constructed from either 48mm thick iroko hardwood battens or Corian solid surface material bonded to plywood sheet to give a finished thickness of 38mm.
- Supporting steel underframe is constructed from rolled steel channel logs and 3mm thick mild steel graced panels, fully roboted all around to prevent passage of contraband.
- Anti-ligature perforations are supplied within the top panels which is sloped to prevent climbing.
- Underside of bench top is protected from heat generated by the heating pipes with a layer of 8mm thick heat resisting fibreboard.
- The hinged panels allowing access to the heating pipes are held firmly shut by two security fixings.

Finish

- Timber bench top, two coats of water borne varnish.
- Corian in white. Other colours available.
- Steelwork has one coat factory applied high build zinc phosphate primer.

Options

- Ash or Maple battens can be supplied.
- Corian supplied from a range of standard colours.
- Bench can be supplied any length.



Cell Bench Top

Purpose

A cell bench top for use as a new or replacement to an existing bench top.

Specification

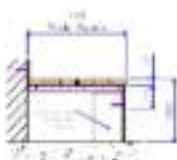
- Bench top is constructed from either 45mm thick iroko hardwood battens or from Corian solid surface material bonded to plywood sheet to give a finished thickness of 35mm.
- Steel supports are constructed from 75mm x 35mm rolled steel channels, with fully welded fixings lugs at face and rear.

Finish

- Timber bench top, two coats of water borne varnish.
- Corian in white. Other colours available.
- Steelwork has one coat factory applied high build zinc phosphate primer.

Options

- Ash or Maple battens can be supplied.
- Corian supplied from a range of standard colours.
- Bench can be supplied any length.
- 300mm wide bench for use in Magistrates Courts.



Crown Court Cell Bench

Purpose

A cell bench complying with the specification of the Court Standard and meeting the criteria for maintaining a safe, secure and functional cell bench seat within the environment of an HMP Crown Court designated cell unit.

Specification

- Bench top and backrest are constructed from 45mm thick iroko hardwood battens.
- Supporting steel underframe is constructed from rolled steel angle legs with fully welded fixing lugs at face and rear.

Finish

- Timber bench top, two coats of water borne varnish.
- Steelwork has one coat factory applied high build zinc phosphate primer.

Options

- Ash or Maple battens can be supplied.
- Corian top.
- Bench can be supplied any length.



Secure Hospital Bed

Purpose

A secure steel bed with safety rails and restraint loops designed specifically for secure hospitals.

Specification

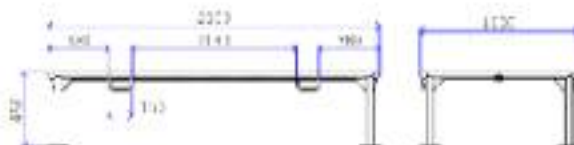
- Bed is constructed from a mild steel tube frame with 5mm thick mild steel mattress base complete with ventilation holes and central 50mm wide rolled hollow section stiffener.
- The frame legs are securely fixed to the floor through 8mm mild steel plates with heavy duty expansion bolts.
- Two restraint loops are provided along each side of the bed.
- A 100mm thick bed mattress can be contained within the bed frame.

Finish

- Polycrystalline paint Oyster Grey.

Options

- Other polycrystalline paint finishes available.
- Fire and vandal proof secure mattresses, sheets, blankets, and pillow cases, can be supplied.



Wall Fixed Single / Double Cell Bunk Bed

Purpose

Secure steel cantilevered bunk bed(s). Designed specifically for use within a prison cell.

Specification

- Bed(s) welded steel construction from 3mm thick mild steel sheet with folded safety edge.
- Cantilevered design and securely fixed to wall through 8mm thick mild steel plates with heavy duty expansion bolts.



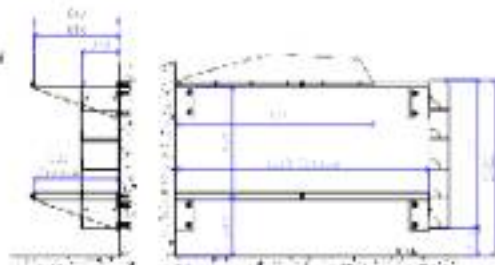
CSL0508A - Single
CSL0508B - Double with ladder

Finish

- Polycrystalline paint Oyster Grey.

Options

- Integral ladder when double beds are required.
- Other polycrystalline paint finishes available.
- Fire and vandal proof secure mattresses, sheets, blankets, and pillow cases, can be supplied.



Cell Double Bunk Bed

Purpose

A secure steel double bunk bed with integral lockable storage for prisoner use. Designed specifically for use within a prison dormitory cell.

Specification

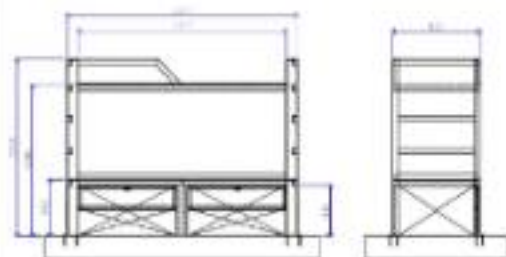
- Beds are constructed from 3mm thick mild steel sheet with formed safety edges.
- Robust welded steel framework.
- Incorporated ladders each end.
- Top bunk guard.
- Beds secured to the floor via heavy duty tamper resistant expansion bolts.

Finish

- Polyester paint black.

Options

- Can be provided either left or right hand (left hand shown).
- Other polyester paint colours available.
- Fire and vandal proof secure mattresses (pictured), pillows, sheets, blankets, and pillow cases, can be supplied.



Wall Fixed Cell Single Bunk Bed

Purpose

A secure steel wallfixed bunk bed with a safety edge. Designed specifically for use within a prison cell.

Specification

- Bed top is constructed from 3mm thick mild steel sheet with circular section safety edge welded around the perimeter of the front and side edges.
- Fixed directly to wall through a continuous fixing flange along the back and through non-reinforcing gusset via tamper resistant expansion bolts.
- The exposed end of the bed has a pressed steel reinforcing gusset.

Finish

- Polyester paint Dystar Grey.

Options

- Can be provided either left or right hand (left hand shown).
- Other polyester paint colours available.
- Fire and vandal proof secure mattresses, seats, blankets, and pillow cases, can be supplied.



Wall Fixed Cell Double Bunk Bed

Purpose

A secure steel cantilevered double bunk bed with safety edges and top bunk safety guard. Designed specifically for use within a prison cell.

Specification

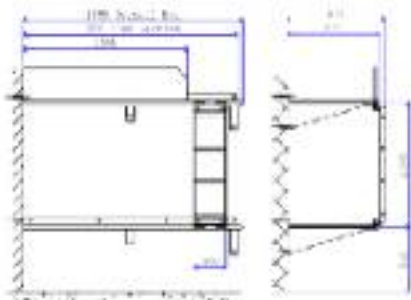
- Bed top is constructed from 3mm thick mild steel sheet with circular section safety edge welded around the perimeter of the front and side edges.
- Fixed directly to the wall through a continuous fixing flange along the back and through reinforcing gusset via tamper resisting expansion bolts.
- The exposed ends of the beds have pressed steel reinforcing gussets.
- The top bunk incorporates a welded steel safety guard.
- All steel construction ladder bolts between both bunks with security fixings.

Finish

- Polyester paint Oyster Grey.

Options

- Can be provided either left or right hand (right hand shown).
- Other polyester paint colours available.
- Fire and vandal proof secure mattresses, sheets, blankets, and pillow cases, can be supplied.



Wall Fixed Cell Double Bunk Bed

Purpose

A secure steel 'assemble on site' cantilevered bunk bed with integral ladder. Designed specifically for use within a prison cell.

Specification

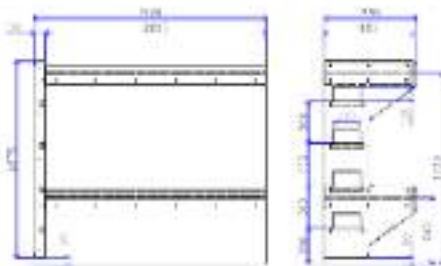
- Beds are constructed from 3mm thick mild steel sheet with formed safety edges, mattress ventilation holes and bolted to the rigid endplate with security fixings.
- Dropplate contains integral ladder.
- Beds secured to walls via heavy duty expansion bolts.

Finish

- Polyester paint Oyster Grey.

Options

- Can be provided either left or right hand (left hand shown).
- Other polyester paint colours available.
- Fire and vandal proof secure mattresses, sheets, blankets, and pillow cases, can be supplied.



Single Prison Cell Bed

Purpose

A secure steel floor standing bed designed specifically for use within a prison cell.

Specification

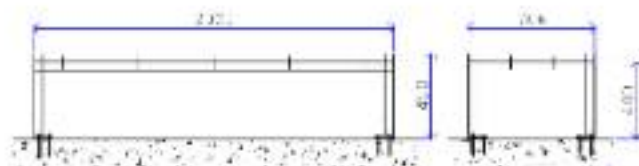
- Constructed from 50mm x 50mm x 3mm steel angle framework with a 3mm mild steel folded sheet bed top.
- Secured to the floor with heavy duty expansion bolts.

Finish

- Polycastor paint Oyster Grey.

Options

- Other polycastor paint colours available.



Double Prison Cell Bunk Bed

Purpose

A secure steel floor standing double bunk bed designed specifically for use within a prison cell.

Specification

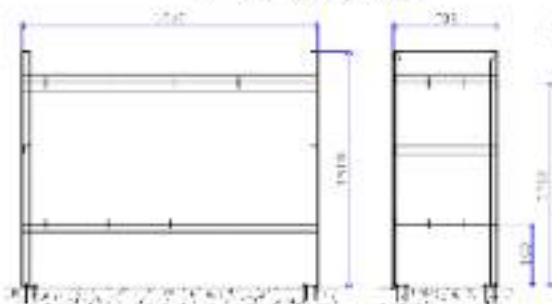
- Constructed from 50mm x 50mm x 3mm steel angle framework with a 3mm mild steel folded sheet bed top.
- Bed ends can be used as ladders for top bunk access.
- Secured to the floor with heavy duty expansion bolts.

Finish

- Polycastor paint Oyster Grey.

Options

- Other polycastor paint colours available.



Triple Prison Cell Bunk Bed

Purpose

A secure steel floor standing triple bunk bed designed specifically for use within a prison cell.

Specification

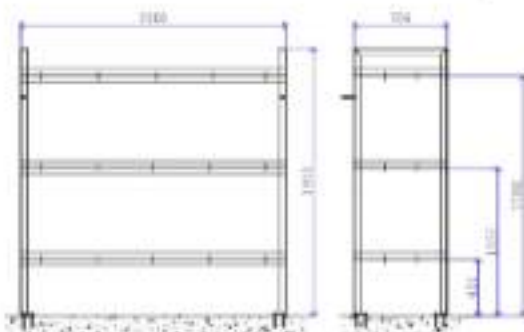
- Constructed from 50mm x 50mm x 3mm steel angle framework with a 3mm mild steel folded sheet bed tops.
- Bed ends can be used as ladders for top bunk access.
- Secured to the floor with heavy duty expansion bolts.

Finish

- Polycrystalline paint Oyster Grey.

Options

- Other polycrystalline paint colours available.



Cell Wardrobe

Purpose

A robust secure steel floor standing wardrobe designed specifically for use within a prison cell.

Specification

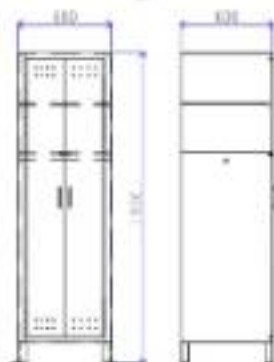
- Constructed from 50mm x 50mm x 3mm steel angle framework with 3mm mild steel folded sheet.
- Hinged doors with magnetic catches, welded pull handles and welded continuous hinges.
- Wardrobe incorporates two welded shelves and clothes rail.
- Doors are perforated at high and low level for ventilation.
- Secured to the floor with heavy duty expansion bolts.

Finish

- Polycrystalline paint Oyster Grey.

Options

- Other polycrystalline paint colours available.



Open Cell Wardrobe

Purpose

A robust secure steel floor standing wardrobe designed specifically for use within a prison cell.

Specification

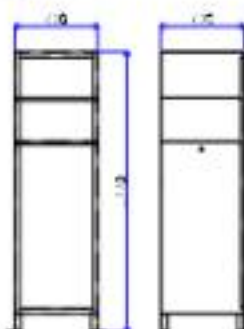
- Constructed from 50mm x 50mm x 8mm steel angle framework with 3mm mild steel folded sheet.
- Wardrobe incorporates two welded shelves and clothes rail.
- Secured to the floor with heavy duty expansion bolts.

Finish

- Polycastor paint Dyator Grey.

Options

- Other polycastor paint colours available.



Cell Shelving Unit

Purpose

A robust secure steel wall shelving unit designed specifically for use within a prison cell.

Specification

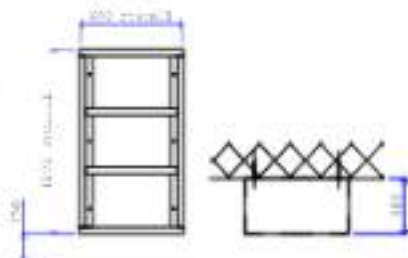
- Construction from 8mm welded mild steel sheet.
- Secured to the wall with heavy duty expansion bolts.

Finish

- Polycastor paint Dyator Grey.

Options

- Other polycastor paint colours available.



Cell Shelf Unit with Snap Hooks

Purpose

A robust secure stainless steel wall shelf incorporating 'snap hooks' which collapses under a pro-act load to prevent ligature attachment. Suitable for use within a prison cell.

Specification

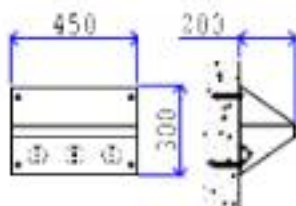
- Welded construction from 3mm thick grade 304 stainless steel.
- Secured to the wall with tamper proof expansion bolts.
- Three load adjustable snap hooks supplied as standard secured to the shelf from the rear to prevent tampering.

Finish

- Satin stainless steel.

Options

- Grade 316 stainless steel.



Cell Shelf

Purpose

A robust secure stainless steel wall shelf suitable for use within a prison cell.

Specification

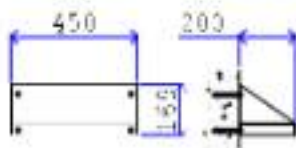
- Welded construction from 3mm thick grade 304 stainless steel.
- Secured to the wall with tamper proof expansion bolts.

Finish

- Satin stainless steel.

Options

- Grade 316 stainless steel.



Ligature resisting snap hooks

Purpose

Ligature resisting stainless steel snag hooks for clothes and towels which collapse under a predetermined load.

Specification

- Machined grade 304 stainless steel.
- Load adjustable.
- Type A front fixing.
- Type B rear fixing.

Finish

- * Machine finish grade 304 stainless steel

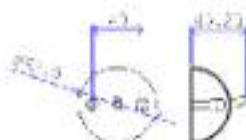
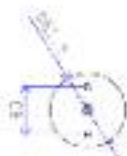
Options

- e Available in grade 316 stainless steel.



CELOSIA - Front fixing

CSLOSISB - Rear fixing



CELOS33 - Timber Stand



C91642 - Timber Island Seat

Interview Chair

Purpose

An interview room chair for maintaining the safety, security and functionality within a police station.

Specification

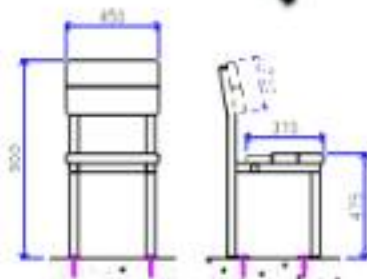
- Chair seating is constructed from 45mm thick Ash batons, mounted on 40x40x3 RHS framework bolted to floor with heavy duty expansion bolts.

Finish

- Timber has two coats of water borne varnish.
- Steelwork is polyester paint black.

Options

- Seats can be provided in alternative hardwood or Corian.
- Steel frame can be provided in a range of colours.



Plastic Cell Chair

Purpose

A plastic chair commonly used in prison cells.

Specification

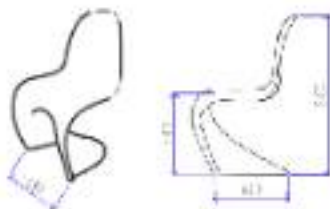
- Injection moulded glass plastic.

Finish

- Available in black or white.

Options

- Other colours available upon request.



SINGLE SEAT

Single Steel Waiting Chair

Purpose

A robust steel chair suitable for waiting areas or interview rooms.

Specification

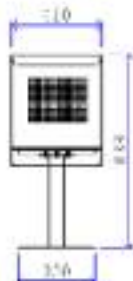
- Seat constructed from perforated 3mm thick mild steel.
- Chair base secured to the floor via heavy duty expansion bolts.

Finish

- Black and silver polyester paint.

Options

- Other colours available upon request.



MULTIPLE SEAT

Multiple Steel Waiting Chairs

Purpose

A robust row of three steel chairs suitable for waiting areas.

Specification

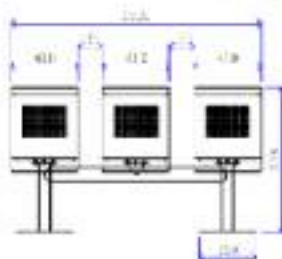
- Seat constructed from perforated 3mm thick mild steel.
- Chair bases secured to the floor via heavy duty expansion bolts.

Finish

- Black and silver polyester paint.

Options

- Other colours available upon request.
- Other seat multiples can be provided in a single unit.



Visits table & chairs

Purpose

A robust visit table with 4 or 8 chair assembly suitable for prison visit halls.

Specification

- Steel framework mandrel bent 3mm thick ERW 1/32 sub, 75mm diameter.
- Completely welded construction with height adjustable feet to allow for uneven flooring.
- Table constructed from 32mm thick laminated 1125 950mm diameter and secured to frame using Pin-Tonix security machine screws, fixing through plate into concealed inserts.
- Chairs constructed from 10mm thick laminated beech ply shells. Secured to frame using Tonix Pin security machine screws, fixing through plate into tamper resistant blind bushes.

Finish

- Steel framework white polyester paint.
- Table top in natural beech finish with beveled edges.

Options

- Seat colour options below.



Seat colour options



Standard Colour Swatches

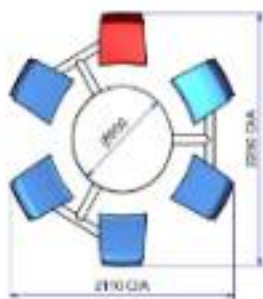


CSL0534A

4 Chair Arrangement

CSL0534B

8 Chair Arrangement



Folding Steel Stool

Purpose

A robust secure folding steel stool suitable for use within prison safe or detention areas.

Specification

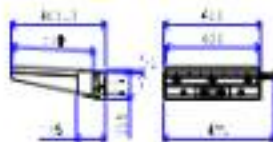
- One piece welded construction.
- Seat constructed from 3mm thick mild steel.
- Can be secured in horizontal or vertical positions via spring loaded plunger.
- Secured to the wall with heavy duty expansion bolts.

Finish

- Polyester paint Dyston Grey.

Options

- Other colours available upon request.



Steel Stool

Purpose

A robust secure steel stool suitable for use within prison cells or detention areas.

Specification

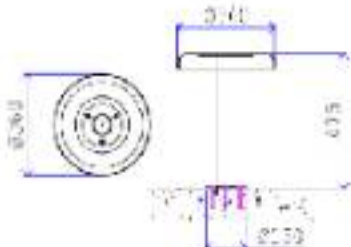
- One piece welded construction.
- Seat constructed from 3mm thick mild steel.
- Secured to the floor with heavy duty expansion bolts.

Finish

- Polyester paint Oyster Grey.

Options

- Other colours available upon request.
- Stainless steel seat.



Wall Mounted Steel Stool

Purpose

A robust wall mounted fixed and swing steel stool suitable for use within prison cells and detention areas.

Specification

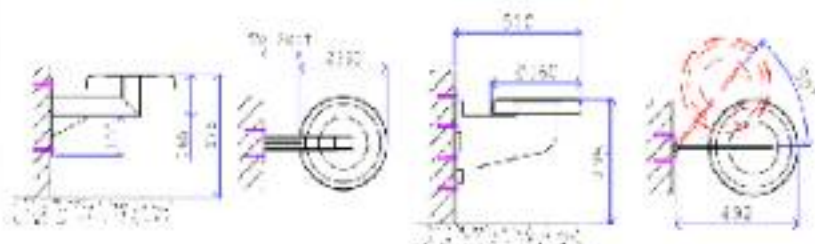
- Wall bracket constructed from welded steel.
- Seat constructed from stainless steel grade 304.

Finish

- Bracket - Polyester paint Oyster Grey.
- Seat - Satin stainless steel.

Options

- Other colours available upon request.



Timber Stool

Purpose

A single timber stool asset suitable for use with interview rooms or in a detention area.

Specification

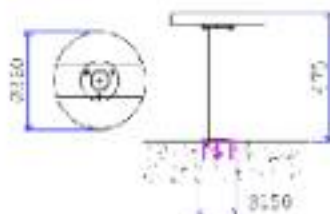
- Seating is constructed from 45mm thick iroko hardwood bottoms.
- Mounted on tubular steel posts bolted to floor.

Finish

- Timber bench top, two coats of water borne varnish.
- Stool post is polyester powder coated, Black.

Options

- Ash or Maple bottoms can be supplied.



Steel Mushroom Stool

Purpose

A robust steel mushroom stool suitable for use in detention areas.

Specification

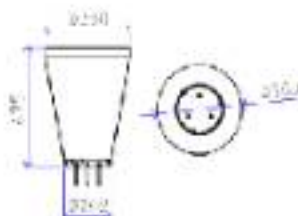
- Constructed from 8mm thick mild steel secured to the floor via an adaptor plate and heavy duty expansion bolts.

Finish

- Polyester paint Oyster Grey.

Options

- Other colours available upon request.
- Stainless steel grade 304.



Adjustable Height Photo Stool

Purpose

A robust adjustable height photo stool designed specifically for police stations.

Specification

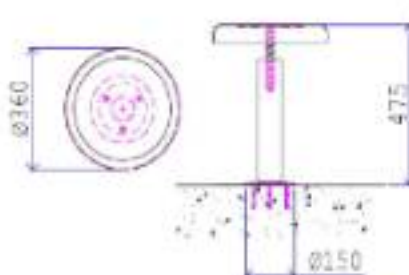
- Welded tubular seat post secured to the floor with heavy duty expansion bolts.
- Seat constructed from 3mm thick stainless steel grade 304.
- Height adjustable by rotating seat.
- The seat can't be removed from the post.

Finish

- Seat post polyester paint black.
- Seat satin stainless steel.

Options

- Other colours available upon request.



Timber Peninsular Seat

Purpose

A robust timber peninsular seat designed specifically for use with interview rooms.

Specification

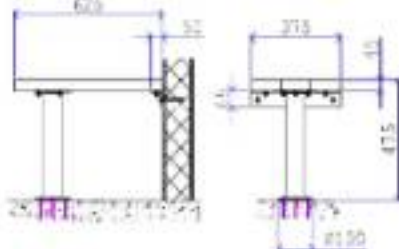
- Welded steel tubular support post for securing to the floor plus steel angle brackets for fixing to the wall.
- Hardwood seat constructed from solid battens of Ash.
- Secured to the floor and wall with heavy duty expansion bolts.

Finish

- Timber seat top, two coats of water borne varnish.
- Steel posts a polyester paint, black.

Options

- Seat can be provided in alternative hardwoods or Corian.
- Steel supports can be provided in a range of colours.



Timber Island Seat

Purpose

A robust timber island seat suitable for use with interview rooms or in a detention area.

Specification

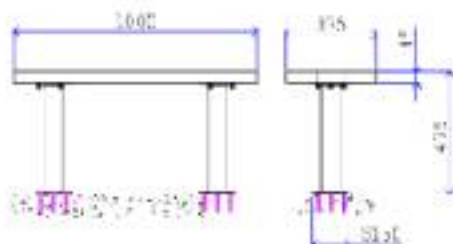
- Welded steel tubular support post for securing to the floor plus steel angle bracket for fixing to the wall.
- Hardwood seat constructed from solid battens of Ash.
- Secured to the floor and wall with heavy duty expansion bolts.

Finish

- Timber seat top, two coats of water borne varnish.
- Steel posts is polycrystal paint, black.

Options

- Seat can be provided in alternative hardwoods or Corian.
- Steel supports can be provided in a range of colours.



Timber Bench Seat

Purpose

A robust timber bench seat suitable for use with toilets or in waiting areas.

Specification

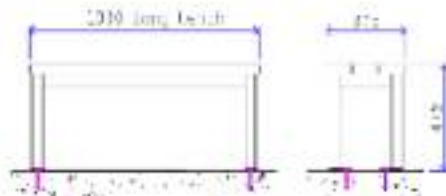
- Steel frame constructed from 50mm x 50mm x 6mm angle steel seat support with 40mm x 40mm RHS legs.
- Hardwood seat constructed from solid battens of Ash.
- Secured to the floor and wall with heavy duty expansion bolts.

Finish

- Timber seat top, two coats of water borne varnish.
- Steel posts is polycrystal paint, black.

Options

- Seat can be provided in alternative hardwoods or Corian.
- Steel supports can be provided in a range of colours.



Waiting Bench



Purpose

A robust timber waiting bench suitable for use in holding areas within detention facilities.

Specification

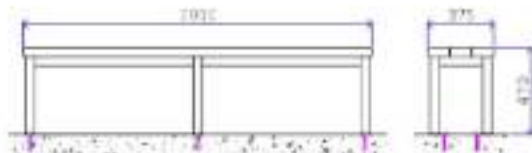
- Steel frame constructed from welded 40 x 40 RHS.
- Handrived seat constructed from solid batons of ash.
- Secured to the floor and wall with heavy duty expansion bolts.

Finish

- Timber seat top, two coats of water borne varnish.
- Steel posts a polyester paint, black.

Options

- Seat can be provided in alternative hardwoods or Corian.
- Steel frame can be provided in a range of colours.
- Different lengths can be provided.
- Welded handruff loops can be added to the steel underframe.



Floor Mounted Pedestal Steel Waiting Bench



Purpose

A robust steel floor mounted pedestal waiting bench, suitable for use in holding / waiting areas within a detention facilities.

Specification

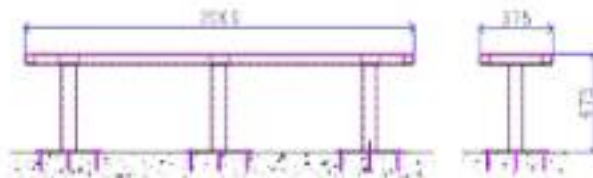
- Welded steel tubular support posts.
- Seat constructed from 3mm thick mild steel folded sheet.
- Secured to the floor with heavy duty expansion bolts.

Finish

- Polyester paint Oyster Grey.

Options

- Other polyester colours available.
- Seat can be provided in stainless steel.
- Different lengths can be provided.
- Welded handruff loops can be provided.



Steel Waiting Bench with Handcuff Loops

Purpose

A robust steel floor mounted waiting bench with handcuff loops. Suitable for use in holding / waiting areas within a detention facility.

Specification

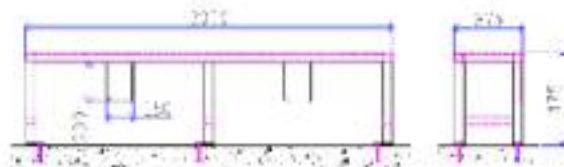
- Welded steel frame constructed from 50mm x 50mm RHS.
- Seat constructed from 3mm thick mild steel folded sheet.
- Secured to floor with heavy duty expansion bolts.
- Two handcuff loops welded to the frame.

Finish

- Polyester paint Oyster Grey.

Options

- Other polyester colours available.
- Seat can be provided in stainless steel.
- Different lengths can be provided.



Wall Mounted Steel Bench

Purpose

A robust wall mounted steel bench suitable for use in holding / waiting areas within a detention facility.

Specification

- Bench constructed from 3mm mild steel folded and welded to 3mm thick mild steel support gussets.
- Secured to wall with heavy duty expansion bolts.

Finish

- Polyester paint Oyster Grey.

Options

- Other polyester colours available.
- Seat can be provided in stainless steel.
- Different lengths can be provided.



Interview Table

Purpose

A robust interview table suitable for use within police station and prison interview rooms.

Specification

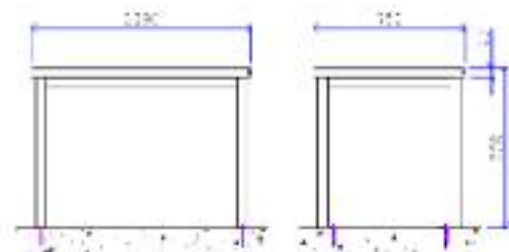
- Table constructed from a solid timber top with Formica on top side and lipped on all four edges with Ash.
- Mounted on 50 x 50 steel angle frame bolted floor.
- Secured to the floor with heavy duty expansion bolts.

Finish

- Steelwork polycolor paint black.
- Formica is white.

Options

- Table top can be constructed from solid timber bottoms to match seating.
- Table top can be provided in Corian.
- Formica can be to any colour within the B.S. range.
- Steel frame can be provided in alternate paint colours.



Interview Table with Central Pedestal

Purpose

A robust interview table with central pedestal. Suitable for use within police station and prison interview rooms where disabled access is required.

Specification

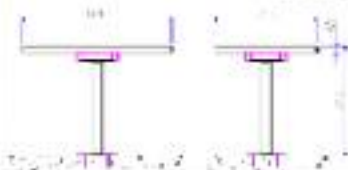
- Table constructed from a solid timber top with Formica on top side and lipped on all four edges with Ash.
- Mounted on substantial centralised steel pedestal bolted to the floor with heavy duty expansion bolts.

Finish

- Steel pedestal polycolor paint black.
- Formica is white.

Options

- Table top can be constructed from solid timber bottoms to match seating.
- Table top can be provided in Corian.
- Formica can be to any colour within the B.S. range.
- Steel pedestal can be provided in alternate paint colours.



Steel Cell Desk

Purpose

A robust steel cell desk suitable for use in a prison cell.

Specification

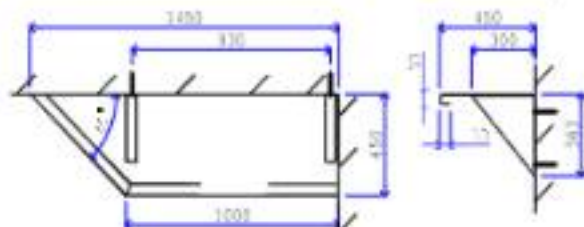
- Desk constructed from pressed 3mm thick mild steel sheet with no sharp edges.
- Welded steel brackets secured to wall with tamper resistant expansion bolts.

Finish

- Polyester paint Oyster Grey.

Options

- Other polyester colours available.
- Desk can be provided in stainless steel.
- Different lengths can be provided.



Steel Cell Writing Table

Purpose

A robust steel cell writing table suitable for use in prison cells.

Specification

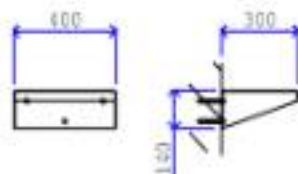
- Table is constructed from pressed 3mm thick mild steel sheet with no sharp edges.
- Fixed directly to wall with tamper resistant expansion bolts.

Finish

- Polyester paint Oyster Grey.

Options

- Other polyester colours available.
- Table can be provided in stainless steel.
- Different lengths can be provided.



Steel Cell Writing Table with Combined Stool

Purpose

A robust steel cell writing table with combined stool suitable for use in prison cells.

Specification

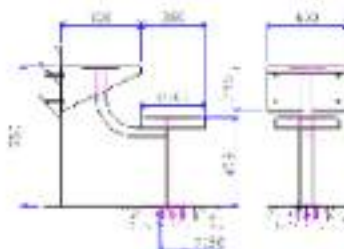
- Welded steel tubular support frame.
- Table and seat constructed from stainless steel grade 304.
- Secured to floor and wall with tamper resistant expansion bolts.

Finish

- Tubular support frame - polyester paint Oyster Grey.
- Table and seat satin stainless steel.

Options

- Tubular support frame can be provided in alternative colours.
- Table and seat can be provided in mild steel with paint finish.



Steel Cell Desk with Swivel Stool

Purpose

A robust steel cell desk incorporating a swivel steel seat and shelves suitable for use in prison cells.

Specification

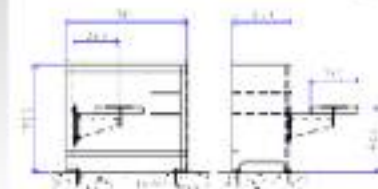
- Desk is constructed from pressed 3mm thick mild steel sheet with no sharp edges.
- Strong swivel steel with stainless steel seat grade 304.
- Desk incorporates two shelves.
- Secured to floor and wall with tamper resistant expansion bolts.
- Available left or right handed (left hand shown).

Finish

- Desk - Polyester paint Oyster Grey.
- Seat - Satin stainless steel.

Options

- Other polyester paint colours available.
- Desk can be provided without a swivel seat for disabled access.



Solid Surface Cell Desk

Purpose

A robust solid surface cell desk suitable for use in high security cells.

Specification

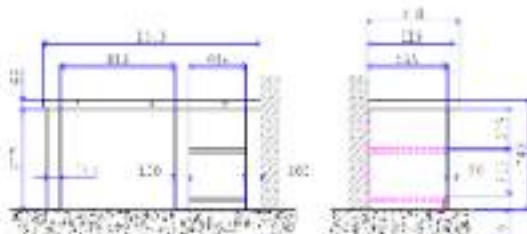
- Desk constructed from marine birch ply with all faces and edges laminated with 12mm thick Corian solid surface material.
- Desk incorporates two shelves.
- Secured to floor and wall with concealed heavy duty expansion bolts.
- Available left or right handed (left hand shown).

Finish

- Fabricated solid surface Corian.

Options

- Various Corian colour options available.



Picnic Table

Purpose

A robust 6 person picnic table suitable for use in a prison dining and association areas.

Specification

- Seats and table top constructed from ground 3mm thick grade 304 stainless steel.
- Underframe supports constructed ground 3mm thick mild steel.
- Assembled on site with tamper proof bolts.
- Secured to the floor with heavy duty expansion bolts.

Finish

- Seats and table top with stainless steel brushed finish.
- Underframe supports polycrystalline paint Dystar Grey.

Options

- Underframe supports can be provided in stainless steel.
- Other polycrystalline paint colours available.



4 Person Dining Table

Purpose

A robust 4 person dining table suitable for use in a prison dining and association areas.

Specification

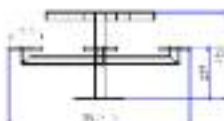
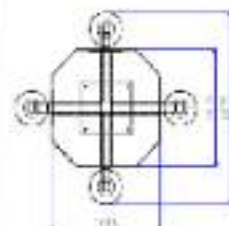
- Seats and table top constructed from pressed 3mm thick grade 304 stainless steel.
- Welded underframe supports constructed from steel rolled hollow sections.
- Assembled on site with tamper proof bolts.
- Secured to the floor with heavy duty expansion bolts.

Finish

- Seats and table top satin stainless steel brushed finish.
- Underframe supports polycrystalline paint Oyster Grey.

Options

- Underframe supports can be provided in stainless steel.
- Other polycrystalline paint colours available.



6 Person Dining Table

Purpose

A robust 6 person dining table suitable for use in a prison dining and association areas.

Specification

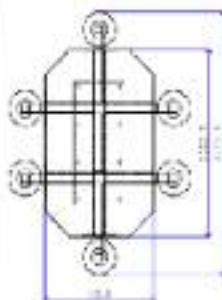
- Seats and table top constructed from pressed 3mm thick grade 304 stainless steel.
- Welded underframe supports constructed from steel rolled hollow sections.
- Assembled on site with tamper proof bolts.
- Secured to the floor with heavy duty expansion bolts.

Finish

- Seats and table top satin stainless steel brushed finish.
- Underframe supports polycrystalline paint Oyster Grey.

Options

- Underframe supports can be provided in stainless steel.
- Other polycrystalline paint colours available.



Medical Cabinet

Purpose

The Medical Storage Cabinets are suitable for storing general first aid items.

Specification

- General first aid equipment storage.
- 1.5mm steel cabinet with flush closing door.
- Lockable inner compartment s/w 2 keys.
- Supplied with 2 removable shelves.
- Supplied with security lock and 2 keys.
- Dimensions external H550mm x W360mm x D205mm

Finish

- Easy clean gloss white paint finish will suit most environments.



Medicine Cabinet

Purpose

The Medicine Cabinets are perfect for controlled drugs that are governed by the Home Office Drugs Inspectorate direction of control.

Specification

- High security cabinets for the safekeeping of controlled drugs / medicines.
- 4mm solid steel electrically welded body.
- 8mm thick door fitted with VDS class 2 double bitting safe lock & 2 keys.
- Supplied with 2 adjustable shelves.
- Suitable for wall or floor fixing - Bolts supplied.
- Dimensions external H532mm x W374mm x D250mm

Finish

- Easy clean gloss white paint finish will suit most environments.



Medicine Safe



Purpose

The Medicine Safe are perfect for controlled drugs that are governed by the Home Office Drugs Inspectorate direction of control.

Specification

- Maximum security for the safekeeping of controlled drugs / medicines.
- 5-way square locking boltwork, with continuous hinge side protection.
- Door opens to 205 degrees for maximum access.
- Lightweight construction - ideal for upper floor installation.
- Fitted with VdS class 3 double bolted safe lock & 2 keys.
- Optional combination or electronic locking available.
- Internal door pin is locked to prevent tampering.
- Supplied with adjustable (30mm intervals) / removable shelf.
- Twin fixing positions - bolts supplied.

Finish

- Easy clean satin grey paint finish will suit most environments.

Dimensions

- Width 410 mm
- Height 425 mm
- Depth 345 mm
- Weight 75 kg
- Capacity 27 litres

Gun Cabinets



Type A

Purpose

These cabinets exceed the UK standard for storing firearms and utilise multi point locking with a VdS class 3 safe lock. The cabinet includes a Master 900 trigger lock to prevent unauthorized use of your weapon during transportation.

Specification (Type A)

- High security cabinet for the safekeeping of shotguns and rifles.
- Exceeds the UK standard for storing firearms.
- 4mm solid steel body and door.
- Multi point locking with VdS class 3 safe lock and 2 keys.
- Weapons holder included for up to 7 weapons.
- 4 handy storage compartments built into the rear of the door.
- Base and rear fixing holes provided.
- Includes FREE Master Lock 900 gun trigger lock.

Specification (Type B)

- High security cabinet for the safekeeping of shotguns and rifles.
- Exceeds the UK standard for storing firearms.
- 4mm solid steel body and door.
- Multi point locking with VdS class 3 safe lock and 2 keys.
- Weapons holder included for up to 5 weapons.
- Includes single fixed shelf.
- 4 handy storage compartments built into the rear of the door.
- Base and rear fixing holes provided.
- Includes FREE Master Lock 900 gun trigger lock.



Type B

Finish

- Colour - Metallic Dark Grey RAL7002

Ammunition Cabinet

Purpose

High security cabinet for the safekeeping of firearms ammunition.

Specification

- 4mm Solid steel electrically welded body.
- 8mm thick door fitted with VdS class 1 double fitted safe lock and 2 keys.
- Supplied with 2 adjustable shelves.
- Suitable for rear or floor fixing - Bolts supplied.

Finish

- Colour - Metallic Dark Grey RAL7001.



Secure Fire Cabinets

Purpose

Our range of secure fire and burglary resistant storage cabinets are an affordable solution for the safekeeping of both valuables and documents.

The cabinets are double-walled with protective filling, providing 30 minutes resistance at temperatures of up to 750°C.

Each model is fitted as standard with five heavy-duty round bolts secured on three sides and a VdS approved safe lock.

Specification

- Ideal in the office, for the safe keeping of paper documents and valuables.
- Suitable for up to £2,000 cash (10 x valuables).
- Independently tested and certified to EN 14450 S1 by VdS test house.
- Double wall construction with fire resistant fill.
- Up to 30 minute protection for documents at 750 degrees.
- Heavy duty 5-way locking mechanism.
- Full height dog bar protects hinge side.
- Standard locking - CE11/VdS approved double fitted lock and 2 keys.
- Optional inner compartments and pull-out frames available.

Finish

- Light Grey finish complements any environment.



CS0675A
1050(W) x 900(H) x 500(D)

CS0675B
1050(W) x 800(H) x 500(D)

CS0675C
1200(W) x 800(H) x 500(D)

CS0675D
800(W) x 600(H) x 500(D)

CS0675E
1050(W) x 1200(H) x 500(D)

WC Pan - Horizontal Outlet



Compatible With

Pneumatic system
CSL0901 Cistern
CSL0902 Push Button

Electrical system
CSL0901 Cistern
CSL0903 Electrical Control Button
CSL0905 Electrical Syphon
CSL0906 Electrical Control Box

Other
CSL0910 Dry Cell Toilet Cover

Specification

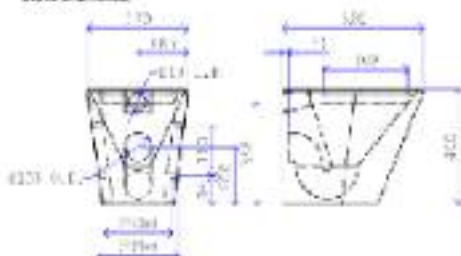
- Constructed in one piece without joints or cracks from 2mm thick grade 304 stainless steel.
- Ligature resistant security flushing rim with a gap of less than 2mm.
- Filled with sound deadening fire retardant expanding foam to prevent drumming.
- Supplied with concealed floor fixing plate and four M12 x 330mm long fixing bolts.
- Ergonomically designed contoured seat.

Finish

- External surface of bowl is polished to a satin finish.
- Internal surface polished to a ultra smooth finish that is hygienic, easy to clean and resistant to scale build-up and deposits.

Options

- Also available in grade 316 stainless steel to order.
- Stove enamelled.



WC Pan - Vertical Outlet



Compatible With

Pneumatic system
CSL0901 Cistern
CSL0902 Push Button

Electrical system
CSL0901 Cistern
CSL0903 Electrical Control Button
CSL0905 Electrical Syphon
CSL0906 Electrical Control Box

Other
CSL0910 Dry Cell Toilet Cover

Specification

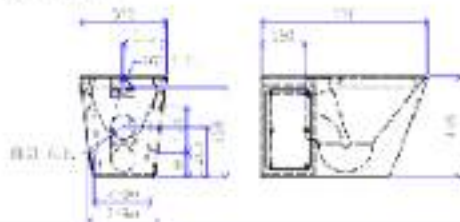
- Constructed in one piece without joints or cracks from 2mm thick grade 304 stainless steel.
- Ligature resistant security flushing rim with a gap of less than 2mm.
- Filled with sound deadening fire retardant expanding foam to prevent drumming.
- Removable side panel to allow for easy outlet access.
- Supplied with concealed floor fixing plate and four M12 x 330mm long fixing bolts.
- Ergonomically designed contoured seat.

Finish

- External surface of bowl is polished to a satin finish.
- Internal surface polished to a ultra smooth finish that is hygienic, easy to clean and resistant to scale build-up and deposits.

Options

- Also available in grade 316 stainless steel to order.
- Stove enamelled.



WC Pan - Disabled

Specification

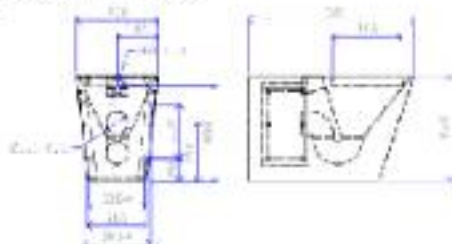
- Constructed in one piece without joints or overlaps from 2mm thick grade 304, stainless steel.
- Urethane retaining security flushing rim with a gap of less than 2mm.
- Filled with sound deadening fire retardant expanding foam to prevent drumming.
- Removable side panel to allow for easy outlet access.
- Supplied with concealed floor fixing plate and four M12 x 330mm long fixing bolts.
- Ergonomically designed contoured seat.

Finish

- Internal surface of bowl is polished to a satin finish.
- Internal surface polished to a ultra smooth finish that is hygienic, easy to clean and resistant to scale build-up and deposits.

Options

- Also available in grade 316 stainless steel to order.
- Stove enamelled.



Compatible With

Pneumatic system
CSL0901 Custom
CSL0902 Push Button

Electrical system
CSL0901 Custom
CSL0903 Electrical Control Button
CSL0905 Electrical Syphon
CSL0906 Electrical Control Box

Other
CSL0910 Dry Cell Toilet Cover
CSL0911 Dec M Rack

WC Pan - Disabled

Specification

- Constructed in one piece without joints or overlaps from 2mm thick grade 304 stainless steel.
- Urethane retaining security flushing rim with a gap of less than 2mm.
- Self draining and an ergonomically designed contoured seat. Filled with sound deadening fire retardant expanding foam to prevent drumming.
- Removable custom top with tamper proof fixings.
- Removable side panel to allow for easy outlet access.
- Supplied in electronic or pneumatic operation.

Finish

- External surface of bowl is polished to a satin finish.
- Internal surface polished to a ultra smooth finish that is hygienic, easy to clean and resistant to scale build-up and deposits.

Options

- Also available in grade 316 stainless steel to order.
- Stove enamelled.



CSL0907E
Electronic Operation

CSL0907P
Pneumatic Operation

CSL0907DE
Disabled Electronic Operation

CSL0907DP
Disabled Pneumatic Operation

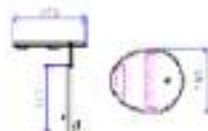
Dry Cell Toilet Cover

Specification

- A unique robust tamper resistant wa-pan cover, transforms a normal cell into a dry cell to prevent the flushing of contraband.
- Ergonomically designed to reduce ligature risks.
- Easy to mount with only a single tamper proof security fixing.
- Installation / removal tool included.
- Compatible with CSU0901, CSU0902, CSU0903, CSU0904, CSU0905, CSU0906 & CSU0907.

Finish

- Polycarbonate powder coated.
- Stainless steel tamper proof security fixing.



Drugs Interceptor

Specification

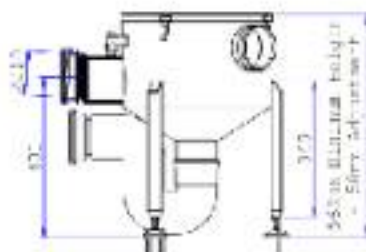
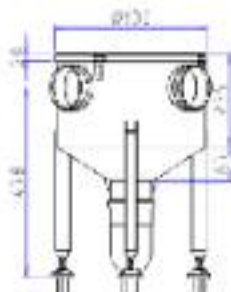
- Constructed from 3.0mm grade 304 stainless steel with all exposed surfaces polished to a satin finish.
- The unit incorporates 3 support legs with height adjustable feet, a wash down inlet connection pipe, waste inlet pipe for connection to WC in cell, an integral contraband collection tray, control strainer and a "T" trap outlet that can be rotated to any position. The unit is supplied with two heavy duty rubber gloves and a clear toughened glass lid for sealed access and inspections.

SITE INSTALLATION INFORMATION

- When installing the unit the following considerations to be made:
- Height of foul water inlet and outlet.
- Ensure there is an adequate fall of the toilet waste pipe.
- Height adjustment of support legs 40mm maximum.

Finish

- Satin polished stainless steel.



Compact Drugs Interceptor

Specification

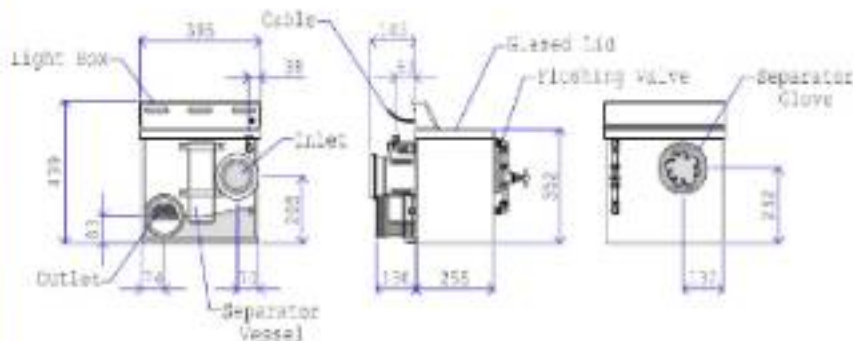
- Constructed from 1.5mm grade 304 stainless steel with all exposed surfaces polished to a satin finish.
- The unit incorporates a wash down inlet connection pipe separated from the front, waste inlet pipe for connection to WC in the cell, an integral hinged contraband collection tray and an acrylic collection removable pot.
- The unit is supplied with one heavy duty right handed rubber glove and a clear polycarbonate inspection lid.
- Inspection light included, requires AC voltage.
- The hinged collection tray can be left in the vertical position which allows the WC to be used normally.
- Compact interceptor ideal for use within the dust area.

SITE INSTALLATION INFORMATION

- When installing the unit the following considerations to be made.
- Height of foul water inlet and outlet.
- Ensure there is an adequate fall of the toilet waste pipe.

Finish

- Satin polished stainless steel.



CS1090S - Stainless Steel Horizontal WC Pan Stove Enamelled

Combination Units

Specification

- Constructed 1.5mm thick grade 304 stainless steel.
- Filled with sound deadening fire retardant expanding foam to prevent drumming.
- Incorporated soap dish.
- Direct flushing as standard.
- Included time flow control valve for washbasin and flushing valve.
- The toilet pan is hung off the combination unit for ease of cleaning underneath.
- Secured to the wall via fixings supplied.

Finish

- External surface of bowl is polished to a satin finish.
- Internal surface polished to a ultra smooth finish that is hygienic, easy to clean and resistant to scale build-up and deposits.

Options

- Available in straight, right and left configurations.
- Toilet roll holder.
- Drinking Water option with third flow control valve.
- Other models are available upon request.
- Also available in grade 316 stainless steel to order.

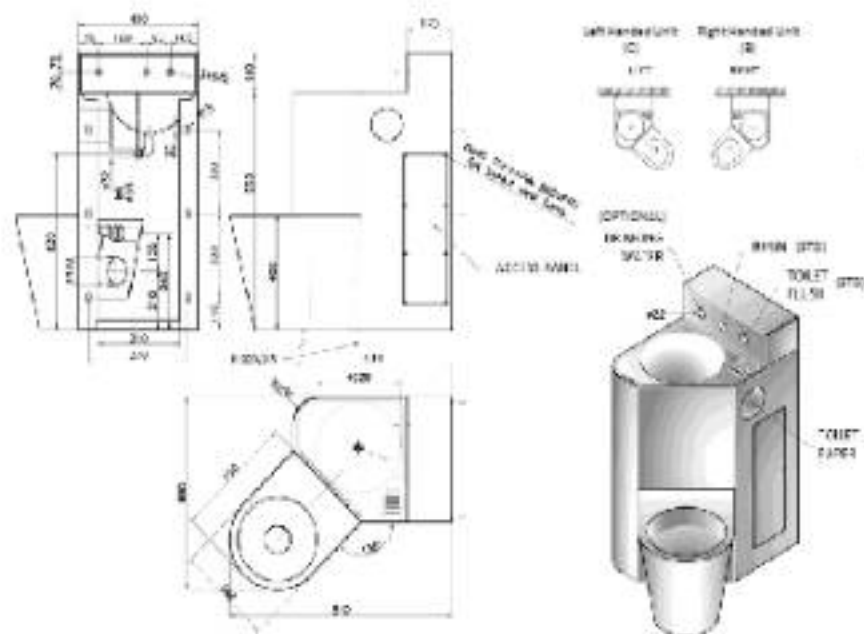
CSL0991A - Straight Unit
CSL0991B - Right Handed Unit
CSL0991C - Left Handed Unit



Right Handed Unit
(B)



Left Handed Unit
(C)



Washbasin - Wall Hung

Specification

- Constructed as a totally enclosed unit in one piece without joints or crevices from 2mm grade 304 Stainless Steel.
- Exposed surfaces of the basin are polished to a satin finish.
- The rear upstand is incorporated for ease of cleaning and hygiene.
- 1 1/4 BSP male waste outlet connector.
- Two tap holes.
- Blanking plug is also included if only one tap is required.

Finish

- Polished stainless steel.

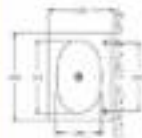
Options

- Can be supplied with removable access cover on the front panel.
- Grade 316 stainless steel available to order.
- Stove enamelled.

Optional (with removable access cover)



Pictured with taps for illustration purposes only



Washbasin - Floor Standing

Specification

- Constructed as a totally enclosed unit in one piece without joints or crevices from 2mm grade 304 Stainless Steel with access panel secured with security fixings.
- Exposed surfaces of the basin are polished to a satin finish.
- The rear upstand is incorporated for ease of cleaning and hygiene.
- The basin's front panel extends downward with an access panel which protects the supply and waste pipes with removable access cover secured with tamper proof fixing screws.
- 1 1/4 BSP male waste outlet connector.
- Two tap holes.
- Blanking plug is also included if only one tap is required.

Finish

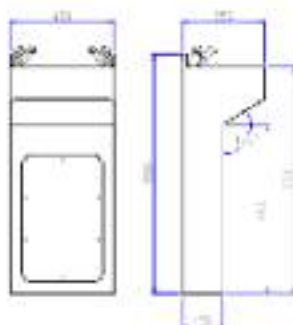
- Polished stainless steel.

Options

- Grade 316 stainless steel available to order.
- Stove enamelled.



Pictured with taps for illustration purposes only



Washbasin - Wall Hung Corner

Specification

- Constructed in one piece without joints or overlaps from 2mm grade 304 Stainless Steel.
- Exposed surfaces of the basin are polished to a satin finish.
- The rear upstand is incorporated for ease of cleaning and hygiene.
- 1 1/4 BSP male waste outlet connector.
- Two tap holes.
- Blanking plug is also included if only one tap is required.

Finish

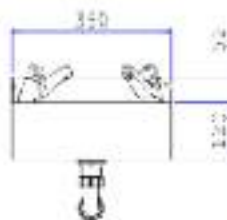
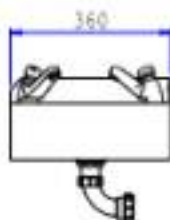
- Polished stainless steel.

Options

- Grade 316 stainless steel available to order.
- Stove enamelled.



Pictured with taps for illustration purposes only



Washbasin - Floor Standing Corner

Specification

- Constructed in one piece without joints or overlaps from 2mm grade 304 stainless steel.
- Exposed surfaces of the basin are polished to a satin finish.
- The rear upstand is incorporated for ease of cleaning and hygiene.
- The basin's front panel extends downward with an access panel which protects the supply and waste pipes with removable access cover secured with tamper proof fixing screws.
- 1 1/4 BSP male waste outlet connector.
- Two tap holes.
- Blanking plug is also included if only one tap is required.

Finish

- Polished stainless steel.

Options

- Grade 316 stainless steel available to order.
- Stove enamelled.



Pictured with taps for illustration purposes only

