

## 410 PROPRIETARY EDGINGS/ COVER STRIPS/ TRANSITION STRIPS

Type:	As per schedule.
Manufacturer:	Kirk Marketing or similar approved.
Product reference:	As per schedule.

## EXECUTION

### 610 WORKMANSHIP GENERALLY

- Base condition after preparation: Rigid, dry, sound, smooth and free from grease, dirt and other contaminants.
- Finished coverings: Accurately fitted, tightly jointed, securely bonded, smooth and free from air bubbles, rippling, adhesive marks and stains.

### 615 SAMPLES

- Covering samples: Before placing orders, submit representative sample of each type.

### 640 COMMENCEMENT

- Required condition of works prior to laying materials:
  - Building is weathertight and well dried out.
  - Wet trades have finished work.
  - Paintwork is finished and dry.
  - Conflicting overhead work is complete.
  - Floor service outlets, duct covers and other fixtures around which materials are to be cut are fixed.
- Notification: Submit not less than 48 hours before commencing laying.

### 642 CONDITIONING

- Prior to laying: Condition materials by unpacking and separating in spaces where they are to be laid. Maintain resilient flooring rolls in an upright position. Unroll carpet and keep flat on a supporting surface.
- Conditioning time and temperature (minimum): As recommended by manufacturer with time extended by a factor of two for materials stored or transported at a temperature of less than 10°C immediately prior to laying.

### 644 ENVIRONMENT

- Temperature and humidity: Before, during and after laying, maintain approximately at levels which will prevail after building is occupied.
- Ventilation: Before during and after laying, maintain adequate provision.

## PREPARING BASES 650

### NEW BASES

- Suitability of bases and conditions within any area:
- Commencement of laying of coverings will be taken as acceptance of suitability.

### 654 NEW WET LAID BASES

- Base drying aids: Not used for at least four days prior to moisture content testing.
- Commencement of laying coverings: Not until all readings show 75% relative humidity or less.

## LAYING COVERINGS 690

### SETTING OUT TILES

- Method: Set out from centre of area/ room, so that wherever possible:
  - Tiles along opposite edges are of equal size.
  - Edge tiles are more than 50% of full tile width.

### 692 COLOUR CONSISTENCY

- Finished work in any one area/ room: Free from banding or patchiness.

## 694 ADHESIVE FIXING GENERALLY

- Adhesive: Type to be as specified, recommended by covering/ underlay manufacturer or as approved.
- Primer: Use and type as recommended by adhesive manufacturer.
- Application: As necessary to achieve good bond.
- Finished surface irregularities: Trowel ridges and high spots caused by particles on the substrate not acceptable.

## 696 SEAMS

- Patterns: Matched.
- Joints: Tight without gaps.

## 706 DOORWAYS

- Joint location: On centre line of door leaf.

## 710 EDGINGS/ COVER STRIPS

- Fixing: Secure (using matching fasteners where exposed to view) with edge of covering gripped.

## COMPLETION

### 910 EXTRA MATERIAL

- Provision of extra material: At completion, hand to Employer extra material of each type of covering to extent of TBA.

### 912 WASTE

- Spare covering material: Retain suitable material for patching. On completion submit pieces for selection. Hand over selected pieces to Employer.

### 960 MAINTENANCE MANUAL

- Incorporate details within the Building Manual to include:
  - Contact details for subcontractors and suppliers.
  - Product information for components and materials including manufacturers' literature.
  - A full set of construction drawings, updated to include any changes made up to the time of completion.
- User instructions include the following:
  - Correct methods for removing and replacing coverings and other components.
  - Cleaning methods and materials.

## 8.2. N21 Edge fixed carpeting

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

### TYPES OF CARPETING

#### 111 CARPETING

- Manufacturer: BELGOTEX or similar approved
  - Product Reference: SERENGETI PHINDA
- Location: As per Architects Floor Finishes drawings.
- Base: Power floated concrete.
- Underlay: BLUE UNDERCUSHION.
- Carpet:
  - Type: Tufted.

### PRODUCTS/ MATERIAL

#### 320 CARPET UNDERLAY

- Standard: SANS 1419.
- Manufacturer: BELGOTEX or similar approved.
- Product reference: BLUE UNDERCUSION.
- Level of use class: -.

## 325 CARPET GRIPPER

- Manufacturer: Contractor's choice.
- Product reference: Submit proposal.
- Types and method of fixing: As recommended by gripper manufacturer to suit specified carpet, base and conditions of use.

## 350 EDGINGS/ COVER STRIPS

- Manufacturer: KIRK MARKETING or similar approved.
- Product reference: as per schedule.
- Material/ finish: as per schedule.

## 355 STAIR NOSINGS/ TRIMS

- Manufacturer: SURESTRIP or similar approved.
- Product reference: as per schedule.
- Material/ finish: as per schedule.

## EXECUTION

### 606 CONTROL SAMPLES

- General: Complete areas of finished work in approved locations as follows, and obtain approval of appearance before proceeding: to be agreed with Architect.

### 610 ENVIRONMENT

- Temperature and humidity: Before, during and after laying, maintain approximately at levels which will prevail after building is occupied.

### 620 BASES

- Suitability of bases and conditions within any area: Commencement of laying carpeting will be taken as acceptance of suitability.

### 625 NEW WET LAID BASES

- Base drying aids: Not used for at least four days prior to moisture content testing.
- Base moisture content test: Carry out in accordance with BS 5325, Annexe A.
- Locations for readings: In all corners, along edges, and at various points over area being tested.
- Commencement of laying carpeting: Not until all readings show 75% relative humidity or less.

### 650 CARPET UNDERLAY ON FLOORS

- Setting out: Seams not to coincide with those in carpet.
- Placement: Cut exactly to size, tightly butted to grippers and secured at perimeter by stapling or sticking to base.
- Surface of installed underlay: Flat, smooth and free from wrinkles or bubbles.
- Seams: Tight butt joints secured with staples, adhesive or top-taped with no shadow shown through carpet.

### 660 CARPET UNDERLAY ON STAIRS

- Extent: Underlay pads to cover tread and riser in one piece to full width of carpet (except where edges will be exposed).
- Placement: Tightly butted to grippers and secured to prevent movement and wrinkling.

### 670 CARPET GRIPPER

- Fixing: Secure to form continuous length along all edges adjacent to vertical surfaces leaving a 'gully width' of approximately three quarters the thickness of carpet. Do not place across openings.

- Gripper strip lengths for adhesive fixing (maximum): 200 mm. LAYING

## CARPET

### 680 WORKMANSHIP GENERALLY

- Finished carpeting: Tightly seamed, accurately fitted, neatly and securely fixed, smooth and evenly tensioned.

### 690 LAYOUT

- Setting out: Before placing order, agree seam locations and pattern.

### 700 CARPET SEAMS/ JOINTS

- Placement: Straight, flat, evenly tensioned and tightly butted with no trapped surface pile between edges.
- Method and materials: Compatible with carpet and as recommended by manufacturers.
- Bond strength: Consistent throughout whole length of seam, sufficient to withstand stretching without opening up and to last the life of carpet in all locations.
- Pattern matching: Where applicable, accurately matched for full length of seam.

### 710 LAYING CARPET GENERALLY

- Appearance of laid carpet: Pieces of the same carpet type capable of being seen together to be of consistent appearance with pile lying in the same direction.
- Carpet perimeter: Accurately and closely fitted leaving no gaps with edges turned down and secured to grippers.
- Carpet tension: Even and such that carpet is flat and will not ruck, ripple or become slack.
- Doorways and recesses: Cut carpet in. Do not piece in without prior approval.

### 720 DOORWAYS

- Carpet joint: On centre line of door leaf.

### 725 EDGINGS/ COVER STRIPS

- Fixing: Secure (using matching fasteners where exposed to view) with edge of carpet firmly gripped.

### 730 LAYING STAIR CARPET WITH GRIPPER

- Shifting allowance: Provide a minimum additional length of carpet equivalent to one tread and riser. Conceal by substituting for underlay at top or bottom of stairs.
- Gripper locations: At each crotch (intersection of tread and riser), one on each riser and one on

each tread. Along landing and winder edges which abut a wall and exceed 300 mm.

- Pile direction: Towards bottom of stairs and perpendicular to nosings.

## 740 STAIR NOSINGS/ TRIMS

- Fixing: Secure, level with mitred joints. Adjusted to suit thickness of carpet with continuous packing strips of hardboard or plywood. Nosings and packing strips bedded in gap-filling adhesive recommended by the manufacturer.

- Screw fixing with matching plugs: Required.

## COMPLETION

### 810 COMPLETION

- Debris: Remove stay tacks and cut away partly loose warp and face yarns.
- Surface irregularities and tension: Check and make necessary tension adjustments.

### 812 WASTE

- Spare covering material: Retain suitable material for patching. On completion submit pieces for selection. Hand over selected pieces to Employer.

### 815 EXTRA MATERIAL

- Provision of extra material: At completion hand to Employer.
- Quantity: 20m<sup>2</sup> of each type.

### 820 MAINTENANCE MANUAL

- Incorporate details within the Building Manual to include:
  - Contact details for subcontractors and suppliers.
  - Product information for components and materials including manufacturers' literature and recommendations for cleaning maintenance and repair.
  - The terms and conditions of any guarantee.
  - Recommendations for routine maintenance and cleaning.
  - Schedule of inspection requirements.

## 9. O : IRONMONGERY AND SIGNAGE

### 9.1. O10 General signage systems

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

#### GENERAL

##### 111 SIGNAGE SYSTEM -

- Building signage scope to be confirmed with DPW.
- Directional / wayfinding signage scope to be confirmed with DPW.

##### 112 FIRE SIGNAGE SYSTEMS -

- Refer to Fire Engineer's drawings and details.

##### 141 ROAD SIGNAGE SYSTEM -

- Standard: To SANS 1519-2.
- Scope and details to be confirmed with DPW.

#### SYSTEM PERFORMANCE

##### 210 GENERAL REQUIREMENTS

- Signage system:
  - Comply with the requirements of:

- Fire strategy report;
- Building operation report; and
- Wayfinding strategy.
- Geometric shapes, colours and layout: In accordance with BS 8501.
- Design standard for the disabled: In accordance with BS 8300.
- Proposals: Submit drawings, schedules, technical information, calculations and manufacturer's literature.

## 220 ROAD SIGNAGE REQUIREMENTS

- Signage system: Complete in accordance with relevant parts of the Department for Transport 'South African road traffic signs manual'.
- Proposals: Submit drawings, schedules, technical information, calculations and manufacturer's literature.

## PRODUCTS

### 302 SIGNAGE SAMPLES

- Sign type: To be agreed with contractor.
- Action: Submit labelled samples.
- Conformity: Retain samples on site for the duration of the contract or until instructed to remove.
- Delivered product: To conform with labelled samples.

### 304 SIGNAGE SAMPLES BOARD

- Samples board: Submit.
- Content: Selected labelled signs, showing methods of fixing.
- Conformity: Retain samples on site for the duration of the contract or until instructed to remove.
- Delivered product: To conform with labelled samples.

### 305 PRODUCTS GENERALLY

- Standard: To SANS 1186-1.

## EXECUTION

### 610 FIXING SIGNS GENERALLY

- Installation: Secure, plumb and level.
- Strength of fasteners: Sufficient to support all live and dead loads.
- Fasteners and or adhesives: As section Z20.
- Fasteners for external signs: Corrosion resistant material or with a corrosion resistant finish. Isolate dissimilar metals to avoid electrolytic corrosion.
- Fixings showing on surface of sign: Must not detract from the message being displayed.

### 620 FIXING SIGNS FOR THE VISUALLY IMPAIRED

- Protection of users:
  - Fasteners for tactile/Braille signs must not have sharp edges or protrusions that would cause confusion or injury to users.

### 630 FIXING ROAD SIGNS

- Protrusion of post top above sign: Not permitted unless supporting a luminaire.
- Drilling of components:
  - Ferrrous components: Drilled before the application of any finish.
  - Plastics sheeting: Apply clear lacquer recommended by plastics sheet manufacturer to edges of holes to prevent ingress of moisture damaging the lamination.
- Erection: In accordance with the 'South African road traffic signs manual'.
- Fixing: Austenitic stainless steel fasteners recommended for the purpose by the sign manufacturer.

## COMPLETION

## 910 DOCUMENTATION

- Submit:
  - Manufacturer's maintenance instructions.
  - Guarantees, warranties, test certificates, record schedules and log books.

## 920 SPARES

- Supply as follows:
  - Type: To be determined.
  - Quantity: 5 modular sets containing all alpha and numeral characters.

## 930 SPECIALIST TOOLS

- Supply as follows: if required.

## 9.2. O20 Door/ Window Ironmongery

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

### GENERAL

#### 110 QUANTITIES AND LOCATIONS

- Types, manufacturers and locations of ironmongery are given in the ironmongery schedule.
- Fixing: As sections L20, L21 Q20 and Q21.

### PERFORMANCE

#### 210 IRONMONGERY FOR FIRE DOORS

- Relevant products: Ironmongery fixed to, or morticed into, the component parts of a fire resisting door assembly.
- Compliance: Ironmongery included in successful tests to SANS 10177 on door assemblies similar to those proposed.
- Certification: Submit evidence of successful testing by SANAS accredited laboratory.
- Melting point of components (except decorative non functional parts): 800°C minimum.

### PRODUCTS

#### 312 IRONMONGERY FROM SINGLE PROPRIETARY RANGE

- Manufacturer: Assa Abloy or similar approved.
- Product reference: as per schedule.
- Principal material/ Finish: as per schedule.
- Items unavailable within selected range: Submit proposals.

#### 320 SAMPLES

- General: Before placing orders with suppliers submit labelled samples of the following: To be agreed with Architect.
- Conformity: Retain samples on site for the duration of the contract. Ensure conformity of ironmongery as delivered with labelled samples.

#### 322 SAMPLE BOARDS

- General: Before placing orders with suppliers submit a sample board, containing labelled samples of ironmongery and showing methods of fixing.
- Range: Include To be agreed with Architect.
- Conformity: Retain board on site in an approved location for the duration of the contract. Ensure conformity of ironmongery as delivered with labelled samples.

## INSTALLATION 610

### GENERALLY

• Door hardware locations from finished floor level to centre-line of hardware to be as follows, unless noted otherwise:

- Lever handles/knobs: 1000 mm.
- Push plate/pull handle: 1070 mm.
- Cylinder pull: 1200 mm.

### 615 FIXINGS

- All items of door ironmongery to be fixed with matching screws to the type and length recommended by the manufacturer and suitable for fixing to wood or metal, as appropriate to suit the door leaf and frame.
- All other visible fixings to have countersunk heads.

### 620 INSTALLATION

- Ironmongery to be installed and checked for correct operation.
- Protect ironmongery during construction; remove fixed items before finishing or painting as required.

### COMPLETION

#### 910 COMPLETION

- On completion adjust, clean and lubricate all ironmongery in accordance with the manufacturer's recommendations.

#### 915 KEY HANDOVER

- At Practical Completion, account for and adequately label all keys.
- Provide the Architect with an itemised schedule and retain a duplicate schedule as a receipt.
- The master keys to be issued by the cylinder/key supplier direct to the Architect.

#### 920 MAINTENANCE MANUAL

- Incorporate details within the Building Manual to include:
  - Contact details for subcontractors and suppliers.
  - Product information for components and materials including manufacturers' literature.
  - A full set of construction drawings, updated to include any changes made up to the time of completion.
- Provide details of the recommended maintenance procedures and timescales for each item of ironmongery.

## 10. Q : METALWORK

### 10.1. Q11 Curtain walling

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

#### GENERAL

111 CURTAIN WALLING Refer to Facade Engineer's Performance Specification Documents



## SYSTEM PERFORMANCE 210

### DESIGN

- Curtain walling and associated features: Complete the detailed design. Submit before commencement of fabrication.
- Related works: Coordinate in the detailed design.

### 211 DESIGN PROPOSALS

- Submission of alternative proposals: Preliminary design drawings indicate intent. Other reasonable proposals will be considered.

### 215 QUALITY PLAN

- Requirement: Submit during detailed design.
- Content: In accordance with EN ISO 9001 and including the following:
  - Name of the quality manager.
  - Quality assessment procedures.
  - Inspection procedures to be adopted in checking the work.
  - Stages at which check lists will be used and samples of the lists.
  - List of work procedures on the correct use of materials or components, both off site and on site.
  - List of product information with latest revisions.
  - Subcontractors involved in the work.
  - Subcontractors' quality plans.
  - Storage, handling, transport and protection procedures.
  - Procedure for registering and reporting non compliances.
  - Maintenance procedures and calibration records.
  - Certification that completed work complies with specification.
  - Check list register to ensure all items have been inspected and non compliances discharged.

### 374 FIXING ANCHORS

- Type and use: Reviewed and approved by fixing manufacturers. Submit confirmatory information on request.
- Dimensions: Not less than recommended by their manufacturers.
- Adjustment capability: Sufficient in three dimensions to accommodate building structure and curtain walling fabrication/ installation tolerances.

## GLASS

### 384 GLASS GENERALLY

- Glass quality: Clean and free from obvious scratches, bubbles, cracks, ripples, dimples and other defects.
- Glass edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

### 386 DIMENSIONAL TOLERANCES ON GLASS

- Measurement of tolerances: Before any thermal toughening/ heat strengthening.
- Pane dimensions less than 1500 mm:
  - For 3 to 6 mm thick glass:  $\pm 1.0$  mm.
  - For 8 to 12 mm thick glass:  $\pm 1.5$  mm.
  - For 15 mm thick glass:  $\pm 2.0$  mm.
  - For 19 mm and 25 mm thick glass:  $\pm 2.5$  mm.
- Pane dimensions more than 1500 mm:
  - For 3 to 6 mm thick glass:  $\pm 1.5$  mm.
  - For 8 to 12 mm thick glass:  $\pm 2.0$  mm.
  - For 15 mm thick glass:  $\pm 2.5$  mm.
  - For 19 mm and 25 mm thick glass:  $\pm 3.0$  mm.
- Pane squareness: Not more than 4 mm difference in diagonal measurements.

### 388 DISTORTIONAL TOLERANCES ON GLASS

- Measurement of tolerances: After any thermal toughening/ heat strengthening.
- Maximum bow: 0.2% of pane dimension.

- Maximum roller wave:
  - For 3 to 5 mm thick glass: 0.5 mm.
  - For 6 to 10 mm thick glass: 0.3 mm.
  - For 12 mm and thicker glass: 0.15 mm.
- Maximum edge dip:
  - For 3 to 5 mm thick glass: 0.8 mm.
  - For 6 to 10 mm thick glass: 0.5 mm.
  - For 12 mm and thicker glass: 0.25 mm.

#### 390 GLASS EDGE CONDITION FOR STRUCTURAL SEALANT GLAZING

- Bonded, unframed outer edges: Flat ground with a small arris suitable for open jointing or for weatherseal jointing.

#### 400 INFILL PANELS/ FACINGS

- Tolerances:
  - Deviation in size (maximum):  $\pm 1$  mm.
  - Deviation in flatness from plane per 2 m length (maximum):  $\pm 1$  mm.
- Rigidity: Adequate to comply with design/ performance requirements.

#### SEALANTS

##### 420 GENERAL SEALANTS

- Selection: In accordance with BS 6213 from:
  - Silicone to SANS 1305.
  - One part polysulphide.
  - One part polyurethane.
  - Two part polysulphide to SANS 110.
  - Two part polyurethane SANS 1077.
- Classification and requirements: To EN ISO 11600.
- Reaction to contact products and finishes: Stable and compatible.

#### FABRICATION

##### 505 FABRICATION SUBMITTALS

- Submit the following curtain walling particulars:
  - Detailed drawings to fully describe fabrication and installation.
  - Detailed calculations to prove compliance with design/ performance requirements.
  - Project specific fabrication, handling and installation method statements.
  - Certification for incorporated components manufactured by others confirming their suitability for proposed locations in the curtain walling.
  - Recommendations for spare parts for future repairs or replacements.
  - Recommendations for safe dismantling and recycling or disposal of products

##### 510 GENERALLY

- Electrolytic corrosion: Prevent. Submit proposed methods.
- Fixings: Concealed unless indicated on detailed drawings. Where exposed they must match material and finish of the products fixed.
- Fabrication: Machine cut and drill products in the workshop wherever possible.
- Identification of products: Mark or tag to facilitate identification during assembly, handling, storage and installation. Do not mark surfaces visible in the completed installation.

##### 512 FABRICATION ACCURACY

- Generally: Grade II to SANS 10155.
- To AAAMSA Guide for accuracy of installed Architectural aluminium clause 3.1.

## 518 SAFETY

- Finished surfaces of curtain walling: Accessible internal and external areas must not:
  - Have irregularities capable of inflicting personal injury.
  - Release irritant or staining substances.

## 524 FIXINGS/ ADHESIVES APPLICATION

- Requirement: As section Z20, unless specified otherwise in this section.

## 526 SEALANT APPLICATION

- Requirement: As section Z22, unless specified otherwise in this section.

## 528 STRUCTURAL SEALANT GLAZING SUBMITTALS

- Submit structural bonding sealant manufacturer's project specific approval for:
  - Compatibility and adhesion of products and finishes.
  - Full details of structural sealant glazing design.
  - Structural sealant dimensions.
  - Project specific sealant application method statement.

## 530 STRUCTURAL SEALANT GLAZING REQUIREMENTS

- Structural sealant glazing units: Installable, removable and replaceable without site application of structural bonding sealant.
- Structural sealant glazing design: Must limit design tensile stress of sealants to 138 kPa.

## 532 STRUCTURAL SEALANT GLAZING

- Curing: Do not transport units until structural bonding sealant has adequately cured for the period stated in the project specific approval.

## 534 STRUCTURAL SEALANT GLAZING TESTS

- Product samples: Provide the structural bonding sealant manufacturer with framing profiles, glass, gaskets, assembly/ weathering sealants and other curtain walling products that are proposed for contact with structural bonding sealant.
- Testing: By sealant manufacturer to determine compatibility and adhesion of structural bonding sealant under specified design loadings.
- Modification of product to enable compliance with test criteria: Details must be recorded in the sealant manufacturer's project specific approval.

## 540 ASSEMBLY

- General: Carry out as much assembly as possible in the workshop.
- Joints (other than movement joints): Rigidly secured, reinforced where necessary and fixed with hairline abutments.
- Displacement of components in assembled units: Submit proposals for reassembly on site.

## EXECUTION

### 605 PROJECT TESTING (SITE)

- Test results and reports: Before installation of general areas of curtain walling, submit proof of compliance with this specification.

### 610 PRELIMINARY CURTAIN WALLING INSTALLATION

- Requirement: Complete an area for inspection and approval of appearance as follows: New Court Building - Main Curtain walling.

### 612 INSTALLATION ACCURACY

- Generally: Grade II to SANS 10155.
- Individual frames and vents to AAAMSA Guide for accuracy of installed Architectural aluminium clause 3.2.
- Curtain wall and strip windows to AAAMSA Guide for accuracy of installed Architectural

aluminium clause 3.3.

## 614 FIXING ANCHOR INSTALLATION

- Site drilling or cutting into structure: Submit proposals for positions other than shown on detailed drawings.
- Concrete supporting structure:
  - Cast-in inserts: Provide detailed locational information. Protect cavities in inserts from entry of concrete.
  - Edge fixing distances: Not less than recommended by fixing anchor manufacturers.
- Corrective fabrication: Minimize. Where necessary, submit proposals.

## 616 CURTAIN WALLING INSTALLATION

- Securing to fixing anchors: Through holes formed during fabrication only.
- Tightening mechanical fasteners: To manufacturer's recommended torque figures. Do not overtighten fasteners intended to permit differential movement.
- Protective coverings: Remove only where necessary to facilitate installation and from surfaces that will be inaccessible on completion.

## 618 FIRE STOPPING

- Locations: At junctions of curtain walling with compartment walls and floors.
- Materials and methods of fixing: To ensure fire resistance not less than that specified for compartment walls and floors.

## 620 LIGHTNING PROTECTION

- Curtain wall components to be bonded in accordance with SANS 10313.
- Bonding between sections to have a minimum cross sectional area of 50 mm<sup>2</sup>.
- All straps/ connections to be concealed.

## 624 INTERFACES

- Flashings, closers, etc: Locate and form correctly to provide weathertight junctions with the curtain walling.

## 626 IRONMONGERY

- Assembly and fixing: Accurately, using fasteners with matching finish supplied by ironmongery manufacturer.
- Completion: Check, adjust and lubricate as necessary to ensure correct functioning.

## COMPLETION

### 920 MAINTENANCE MANUAL

- Incorporate details within the Building Manual to include:
  - Contact details for subcontractors and suppliers.
  - Design criteria for the curtain wall system.
  - Product information for components and materials including manufacturers' literature and recommendations for cleaning maintenance and repair.
  - Copies of material, components and finishes certification and test report.
  - A full set of construction drawings, updated to include any changes made up to the time of completion.
  - The terms and conditions of any guarantee.
  - Method statement for means of access for maintenance and for use of any permanent equipment.
  - Method statement covering the procedures for replacement of parts that have a design life less than the design life of the curtain wall system.
  - Recommendations for routine maintenance and cleaning, including suitable cleaning agents and lubrication/ adjustments to working parts.
  - Schedule of inspection requirements.
- Record book for listing defects, maintenance and repairs.
- Materials certification and test reports to be included: As recommended by Facade Engineer.

## 10.2. Q20 Metal windows/ louvres/ screens/ rooflights

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

### SYSTEM PERFORMANCE 210

#### DESIGN

- Windows, Shop fronts and associated features: Complete the detailed design. Submit before commencement of fabrication.
- Related works: Coordinate in the detailed design.

### 211 DESIGN PROPOSALS

- Submission of alternative proposals: Preliminary design drawings indicate intent. Other reasonable proposals will be considered.

### 212 SPECIFICATION

- Compliance standard: Association of Architectural Aluminium Manufacturers of South Africa 'General Specification for Architectural Aluminium and Glass Products'.

### 213 INFORMATION TO BE PROVIDED WITH TENDER

- Submit the following particulars:
  - Typical plan, section and elevation drawings at suitable scales.
  - Typical detailed drawings at large scales, including To Be Agreed with Architect.
  - Technical information and certification demonstrating compliance with specification of proposed incorporated products and finishes.
  - Proposals for connections to and support from the building structure and building components.
  - Schedule of builder's work, special provisions and special attendance by others.
  - Areas of non-compliance with the specification.

### PRODUCTS

#### 325 ALUMINIUM WINDOWS

- Standard: To SANS 1651.
- Exposure category SANS 10160 Design wind load: 2000.
- AAAMSA Performance Class: A2.
- Thermal improvement: Required.
- Finish as delivered: Polyester powder coating to SANS 1796.
- Colour: Black
- Glazing details: Single skin.
- Glazing system:
  - Extruded gaskets supplied with frame.
  - Gaskets and beads: Installed as recommended by frame manufacturer.
- Ironmongery/ Accessories: handle.
- Fixing: as recommended by manufacturer.

#### 340 ROOFLIGHTS

- Manufacturer: Submit proposals.
- Product reference: submit proposals.
- Type: Domed.
- Frame: Aluminium.
- Finish: Powder coated.
- Colour: Black.
- Kerb: Aluminium.
- Glazing details: Single skin.
- Other requirements: -.
- Fixing: as per manufacturer's recommendation.

## 370 METAL SCREENS

- Manufacturer: RVI or similar approved.
- Product reference: Submit Proposals.
- Material: CORTEN STEEL.
- Finish as delivered: Oxidised (rusted) to certain point & then sealed.
- Fire resistance rating: Not applicable.
- Screen blade profile: As per detailed drawings.
- Blanking panels: Not required.
- Accessories/ Other requirements: Access door.
- Fixing: -. Fixed to metal sub-frame. Refer to detailed drawings

## 375 BRISE SOLEIL

- Manufacturer: Submit proposals.
- Product reference: Submit proposals.
- Materials/ Finish as delivered:
- Louvre blades: Aluminium.
- Sidesupportarms:Aluminium.
- Mounting brackets:Aluminium.
- Support struts: submit proposals.
- Fasteners: as recommended by specialist manufacturer.
- Accessories/Special features: To be used as gantry for purpose of cleaning the curtain walling.

## GLASS

### 394 GLASS GENERALLY

- Glass quality: Clean and free from obvious scratches, bubbles, cracks, riplings, dimples and other defects.
- Glass edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

### 400 SITE DIMENSIONS

- Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- Designated items: ALL.

### 410 CONTROL SAMPLES

- Procedure:
- Finalise component details.
- Fabricate one of each of the following designated items as part of the quantity required for the project.
- Obtain approval of appearance and quality before proceeding with manufacturer of the remaining quantity.
- Designated items: TBA with Architect.

### 415 EVIDENCE OF PERFORMANCE

- Certification: Provide independently certified evidence that all incorporated components comply with specified performance requirements.

## EXECUTION

### 610 PROTECTION OF COMPONENTS

- General: Do not deliver to site components that cannot be installed immediately or placed in clean, dry floored and covered storage.
- Stored components: Stack vertical or near vertical on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

## 615 CORROSION PROTECTION

- Surfaces to be protected: Aluminium.
- Protective coating: Two coats of bitumen solution or an approved mastic impregnated tape.
- Timing of application: Before fixing components.

## 620 BUILDING IN

- General: Not permitted unless indicated on drawings.
- Brace and protect components to prevent distortion and damage during construction of adjacent structure.

## 622 OPENINGS FOR FRAMES

- Formation: Use accurate, rigid templates to required size.

## 630 DAMP PROOF COURSES IN PREPARED OPENINGS

- Location: Ensure correct positioning in relation to window frames. Do not displace during fixing operations.

## 650 FIXING OF ALUMINIUM FRAMES

- Standard: As section Z20.
- Fasteners: As recommended by manufacturer.
- Spacing: When not predrilled or specified otherwise, position fasteners not more than 250 mm from ends of each jamb, adjacent to each hanging point of opening lights, and at maximum 600 mm centres.

## 670 SEALANT JOINTS

- Sealant:
- Manufacturer: Submit proposals.
- Product reference: Submit proposals.
- Colour: to match window / door frame.
- Application: As section Z22 to prepared joints. Finish triangular fillets to a flat or slightly convex profile.

## 680 IRONMONGERY

- Fixing: Assemble and fix carefully and accurately using fasteners with matching finish supplied by ironmongery manufacturer. Do not damage ironmongery and adjacent surfaces.
- Checking/Adjusting/Lubricating: Carry out at completion and ensure correct functioning.

## COMPLETION

### 920 MAINTENANCE MANUAL

- Incorporate details within the Building Manual to include:
- Contact details for subcontractors and suppliers.
- Product information for components and materials including manufacturers' literature.
- A full set of construction drawings, updated to include any changes made up to the time of completion.
- The terms and conditions of any guarantee.
- Recommendations for routine maintenance and cleaning, including suitable cleaning agents and lubrication/adjustments to working parts.

## 10.3. WINDOWS

### 10.3.1. WINDOW TYPE A – TYPICAL GROUND FLOOR CASEMENT WINDOWS IN BRICKWORK

## WINDOW WALL

### GENERAL

SCREENS SHALL BE THE WINDOW WALL SYSTEM AS SUPPLIED BY HBS ALUMINIUM SYSTEMS OR SIMILAR APPROVED. MANUFACTURE SHALL BE IN ACCORDANCE WITH THE CURRENT MANUALS AS PROVIDED BY HBS ALUMINIUM SYSTEMS VIA [www.hbs.co.za](http://www.hbs.co.za).

### MATERIALS

MATERIAL SHALL BE OF 6063T6 ALUMINIUM ALLOY WITH A MINIMUM STRUCTURAL WALL THICKNESS OF 1.8MM. OUTER FRAME TO INFILL PANELS WILL BE A NOMINAL DEPTH OF 60, 111 OR 166MM.

### CONSTRUCTION

OUTER FRAME TO CONSIST OF A SINGLE PART COMPENSATING HEAD AND JAMB AND CONTINUOUS SUB-SILL. INFILL PANELS ARE TO BE CONSTRUCTED FROM DOUBLE CAVITY TUBULAR PROFILES, FORMING A WET CAVITY WITH DRAINAGE SLOTS TO ALLOW FOR TRANSOM DRAINAGE TO THE EXTERIOR. ALL GLAZING REBATES TO BE 25MM. JOINTS OF THE INFILL PANELS SHALL BE NOTCHED AND SCREWED TO SPIGOTS WITH NO 8 STAINLESS STEEL SCREWS. WHERE REQUIRED, A 111MM OR 166MM SPLIT MULLION ASSEMBLY MUST BE USED TO COUPLE INFILL PANELS TOGETHER, STILL MAKING ALLOWANCE FOR ALL THERMAL AND DYNAMIC MOVEMENT. DOOR PANELS WITHIN THE SCREENS TO HAVE A 4-EDGE DOOR REBATE WITH GASKET SEAL ALL ROUND.

### INSTALLATION

PANEL-BY-PANEL INSTALLATION FROM INSIDE OR FROM OUTSIDE THE BUILDING. HARDWARE ALL SASHES TO HAVE MECHANICAL CORNER CONNECTORS, WIND LOCKS AND MULTI-POINT LOCKING HANDLES. SASHES NOT TO EXCEED 1700MM WIDE BY 1200MM HIGH AS PER SPECIFICATION. FRICTION STAY TO SUIT MAX WEIGHT AND SIZE OF SASH.

DOOR HARDWARE SHALL BE COMPATIBLE WITH THE SYSTEM AND WILL TAKE COGNISANCE OF THE FINISH SPECIFICATION OF THE APPLICABLE AREA. SEE HARDWARE SCHEDULE FOR DOOR.

### FINISH

SECTIONS WILL BE PAINTED IN ACCORDANCE WITH SABS1578, PARTS1 & 2.

### GLAZING

GLAZING IS TO BE CARRIED OUT IN ACCORDANCE WITH SABS 0137, WITH PARTICULAR ATTENTION TO SIZE LIMITATIONS, PACKING AND SETTING BLOCKS. THICKNESSES FROM 6- 28MM.

### STRUCTURAL PERFORMANCE

SYSTEM SHALL MEET OR EXCEED THE REQUIREMENTS OF SANS613 AND THE DESIGN LOADING DETERMINATION BY SABS 0160 FOR THIS APPLICATION. DEFLECTION OF STRUCTURAL MEMBERS SHALL NOT EXCEED  $L/175$  OR  $L/240+6$ MM AS APPLICABLE.

### 10.3.2. WINDOW TYPE B – TYPICAL OFFICE WINDOWS IN RAINSCREEN CLADDING FACADE

#### NUKLIP FLUSH GLAZING

##### GENERAL

SCREEN SHALL BE THE NUKLIP FLUSH GLAZING SYSTEM AS SUPPLIED BY HBS ALUMINIUM SYSTEMS OR SIMILAR APPROVED. THE SYSTEM SHALL BE A GRID AND PANEL CONCEPT WHICH ALLOWS GLAZED PANELS TO BE ERECTED ON PRE-ERECTED VERTICAL AND HORIZONTAL GRIDS. MANUFACTURE SHALL BE IN ACCORDANCE WITH THE MANUALS AS PROVIDED BY HBS ALUMINIUM SYSTEMS.

##### MATERIALS

ALUMINIUM SHALL BE OF 6063T6 ALUMINIUM ALLOY WITH A MINIMUM WALL THICKNESS OF 2 MM FOR ALL STRUCTURAL MEMBERS.



# NATIONAL DEPARTMENT OF PUBLIC WORKS

## CONSTRUCTION

GRID IS TO BE CONSTRUCTED FROM NUKLIP SHOP FRONT 152MM PROFILE. WINDOW UNIT FIXED TO BUILDING FRAME WITH BESPOKE BRACKETS. GLASS PANEL FRAME IS TO BE MECHANICALLY CLEATED. GLASS TO BE STRUCTURALLY

GLAZED INTO PANEL FRAMES IN A CONTROLLED ENVIRONMENT OFF SITE TO SILICONE SUPPLIERS SPECIFICATIONS. ALL FIXING OF PANELS INTO THE GRID TO BE DONE WITH STAINLESS STEEL SELF TAPPING SCREWS.

## FINISH

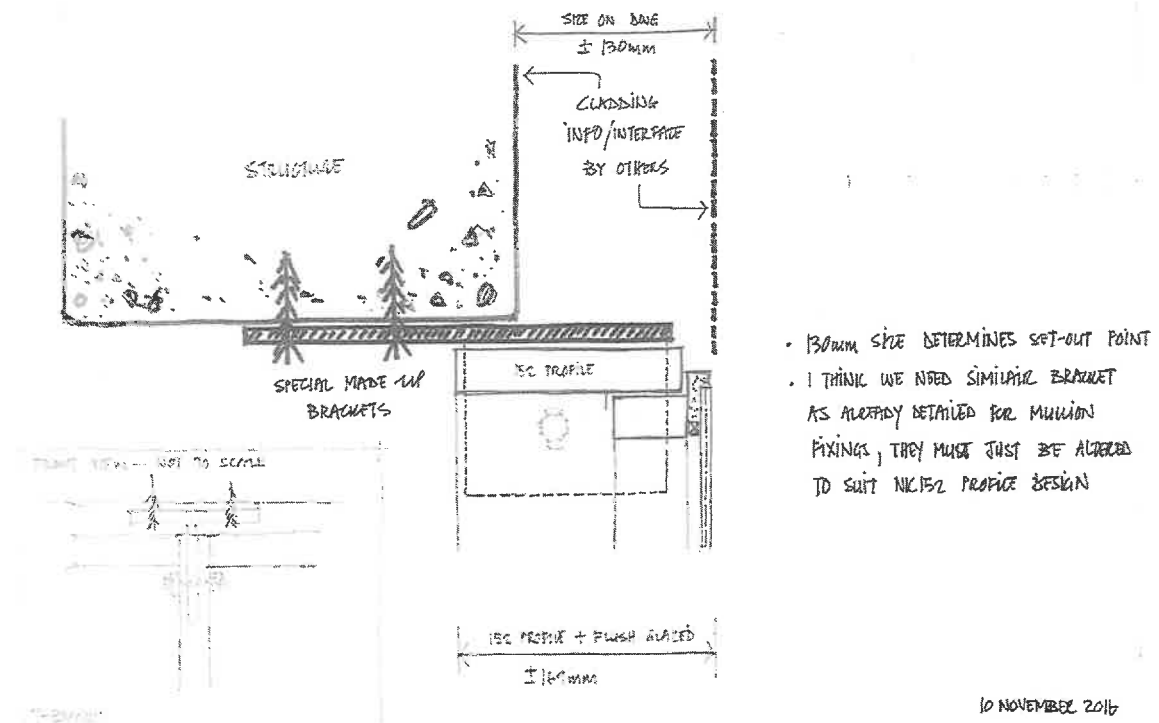
SECTIONS SHALL BE FINISHED ANODISED OR PAINTED IN ACCORDANCE WITH SABS 999 OR SABS 1578, PARTS 1 & 2, RESPECTIVELY. FINISH TO BE COMPATIBLE WITH ALL STRUCTURAL AND ADHESION REQUIREMENTS OF STRUCTURAL SILICONE GLAZING.

## GLAZING

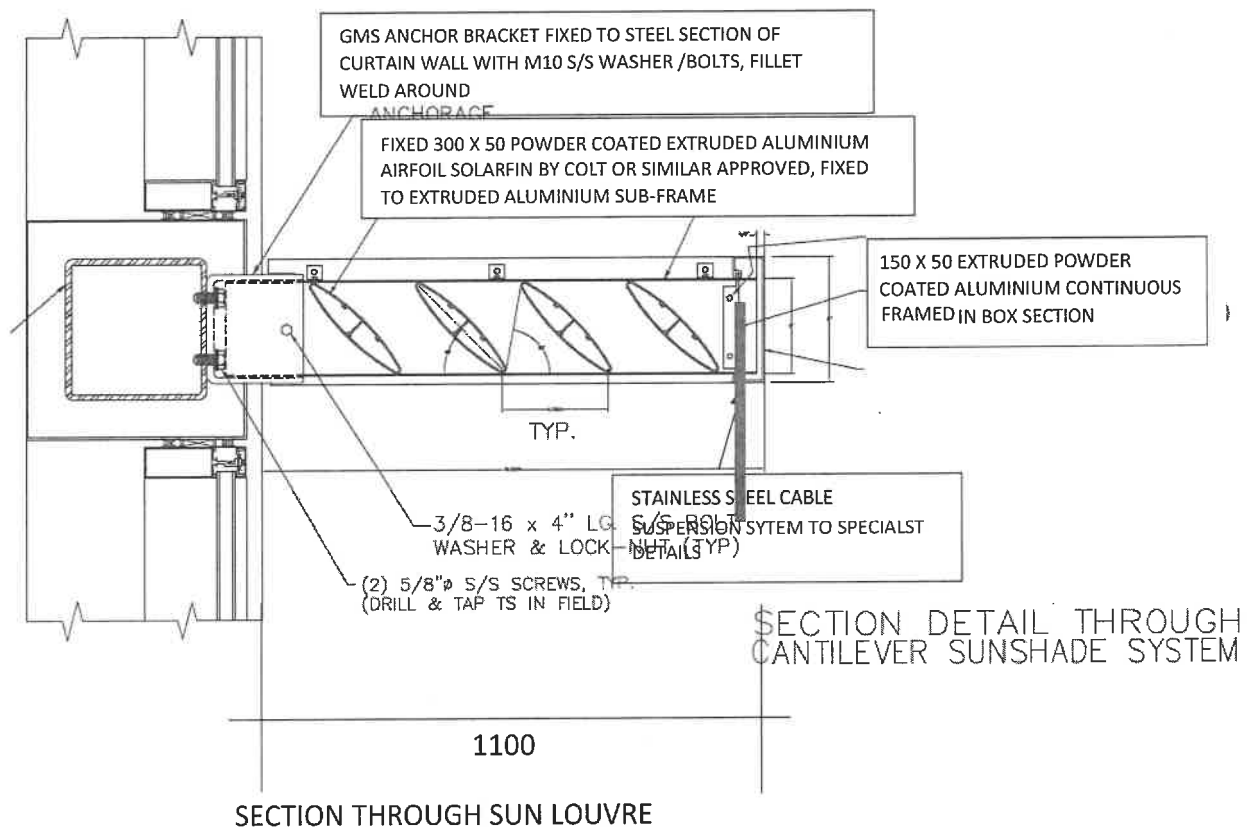
PANELS TO BE SINGLE FACTORY GLAZED AND CARRIED OUT IN ACCORDANCE WITH SABS 0137, WITH PARTICULAR ATTENTION TO SIZE LIMITATIONS AND PACKING AND SETTING BLOCKS. APPROVED APPLICATION OF STRUCTURAL SILICONE SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER'S QUALITY PROCEDURES, CHECKS AND INSTRUCTIONS, BOTH IN FACTORY AND ON SITE.

## PERFORMANCE

SYSTEM SHALL MEET OR EXCEED THE REQUIREMENTS OF AAAMSA PERFORMANCE AND THE DESIGN LOADING DETERMINATION BY SABS 0160 FOR THIS APPLICATION.



10.4. AIRFOIL HORIZONTAL SUN LOUVRE



10.5. Q22 Stairs/ Walkways/ Handrails/ Balustrades

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

SYSTEM REQUIREMENTS

210 DESIGN

- Design standard: The following items have been designed to SANS 10160 where applicable: S tairs, balustrades and handrails.
- Completion of design: Finalize details to meet structural and safety requirements of SANS 10160 and SANS 10400.
- Type of activity/ occupancy category to SANS 10160: 4 (Office and work areas.).

PRODUCTS

350 BALUSTRADES METAL BALUSTRADES TO FIRE ESCAPES

- Manufacturer: Submit proposals.
- Product reference: Submit proposals.
- Dimensions: As per Architect's drawings.
- Components:
  - Uprights: Polished stainless steel flats as per Architect's drawing
  - Treatment: Galvanized to SANS 121/ISO 1461. Finish: Undercoat, primer and paint, as section X10.
  - Infill: Polished stainless steel rod/ bar.

- Handrail: Required.
- Workmanship: To section Z11.
- Other requirements: None.
- Fixing: Two point fixing to face of string.

## 360 HANDRAILS TO FIRE ESCAPE BALUSTRADES

- Manufacturer: Submit proposals.
- Product reference: Submit proposals.
- Components:
  - Handrails: Polished stainless steel.
  - Size: 50 mm diameter.
  - Finish: Polished.
  - Brackets: stainless steel. Type: Stem bracket concealed fixings.
- Workmanship:
  - Joinery: To section Z10.
  - Metalwork: To section Z11.
- Other requirements: None.

## 410 STAINLESS STEEL COMPONENTS

- Sections and bar material: To EN 10088.
  - Grade: 1.4401 (Grade 316).
- Solid plates: To EN 10028-7.
  - Thickness: -.
- Tubular items:
  - Grade: 1.4401.
  - Finish: Submit proposals.
  - Fixings: As section Z20.

## FABRICATION 500

### SUBMITTALS

- Shop drawings: Submit.

### 510 SITE DIMENSIONS

- Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
- Designated items: ALL.

### 515 FABRICATION GENERALLY

- Design: Complete the detailed design and obtain approval prior to commencing fabrication.
- Shop drawings: Submit.
- Structural calculations: Submit.
- Frameworks: Assemble and brace, including temporary members required for installation.
- Contact between dissimilar metals: Avoid.
- Fixings: Fully bolt together. Tighten bolts.
- Temporary support: Do not subject members to non-design loadings.

### 520 WELDED JOINTS

- Preparation: as SANS 9692.
- Standards:
  - Aluminium alloys: TIG or MIG welding to EN 1011-4. Mild steel: Metal arc welding to EN 1011-1 and -2. Stainless steel: TIG welding to EN 1011-3.
  - Surfaces to be jointed: Clean.
  - Tack welds: Use only for temporary attachment.

- Traces of flux residue, slag and weld spatter: Remove.
- Surface of welds: Grind smooth.
- Joints: Fully bonded with no holes or cracks.

## EXECUTION

### 610 EXECUTION GENERALLY

- Structural members: Do not subject to nondesign loading. Do not modify, cut, notch or make unspecified holes.
- Frameworks: Assemble and brace, including temporary members required for installation.
- Temporary support: Do not use access systems as temporary support or strutting for other work.
- External durability of fastenings: Corrosion resistant material or with a corrosion resistant finish.
- Bolted joints:
  - Contact between dissimilar metals: Avoid.
  - Bolts and washers: Select types, sizes and quantities of fasteners or packings and spacings to retain supported components without distortion or loss of support.
- Welded joints:
  - Standards:  
Aluminium alloys: TIG or MIG welding to EN 1011-4. Mild steel: Metal arc welding to EN 1011-1 and -2. Stainless steel: TIG welding to EN 1011-3.
  - Surfaces to be jointed: Clean.
  - Tack welds: Use only for temporary attachment.
  - Traces of flux residue, slag and weld spatter: Remove.
  - Surface of welds: Grind smooth.
  - Joints: Fully bonded with no holes or cracks.
- Finished components:
  - Free: From distortion, cracks, burrs and sharp arrises.
  - Corner junctions of identical sections: Mitre.
  - Handrails: Smooth and continuous, with no sharp edges.
  - Temporary support: Do not use stairs, walkways or balustrades as temporary support or strutting for other work.

### 615 INSTALLATION GENERALLY

- Install items: plumb and level.
- Fasteners and methods of fixing: To section Z20.
- Structural members: Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
- Temporary support: Do not use stairs, walkways or balustrades as temporary support or strutting for other work.

### 620 PRIMING/ SEALING/ PAINTING

- Surfaces inaccessible after assembly/ installation: Before fixing components, apply full protective/ decorative treatment/ coating system.

### 630 CORROSION PROTECTION OF DISSIMILAR MATERIALS

- Components/ substrates/ fasteners of dissimilar materials: Isolate using washers/ sleeves or other suitable means to separate materials to avoid corrosion and/ or staining.

### 640 SPIGOT FIXING BALUSTRADE DIRECTLY TO STRUCTURE ALL GLASS BALUSTRADES

- Hole: 150 mm deep core drilled.
- Distance from edge to centreline: 80 mm.
- Grout: Epoxy non-shrink applied to full depth of hole.

### 660 ANCHORING

- Fixing positions: Coordinate location of holding down bolts and wall fixings with services fixing

positions.

COMPLETION

910 CLEANING

- General: Clean surfaces and wipe down finishes.

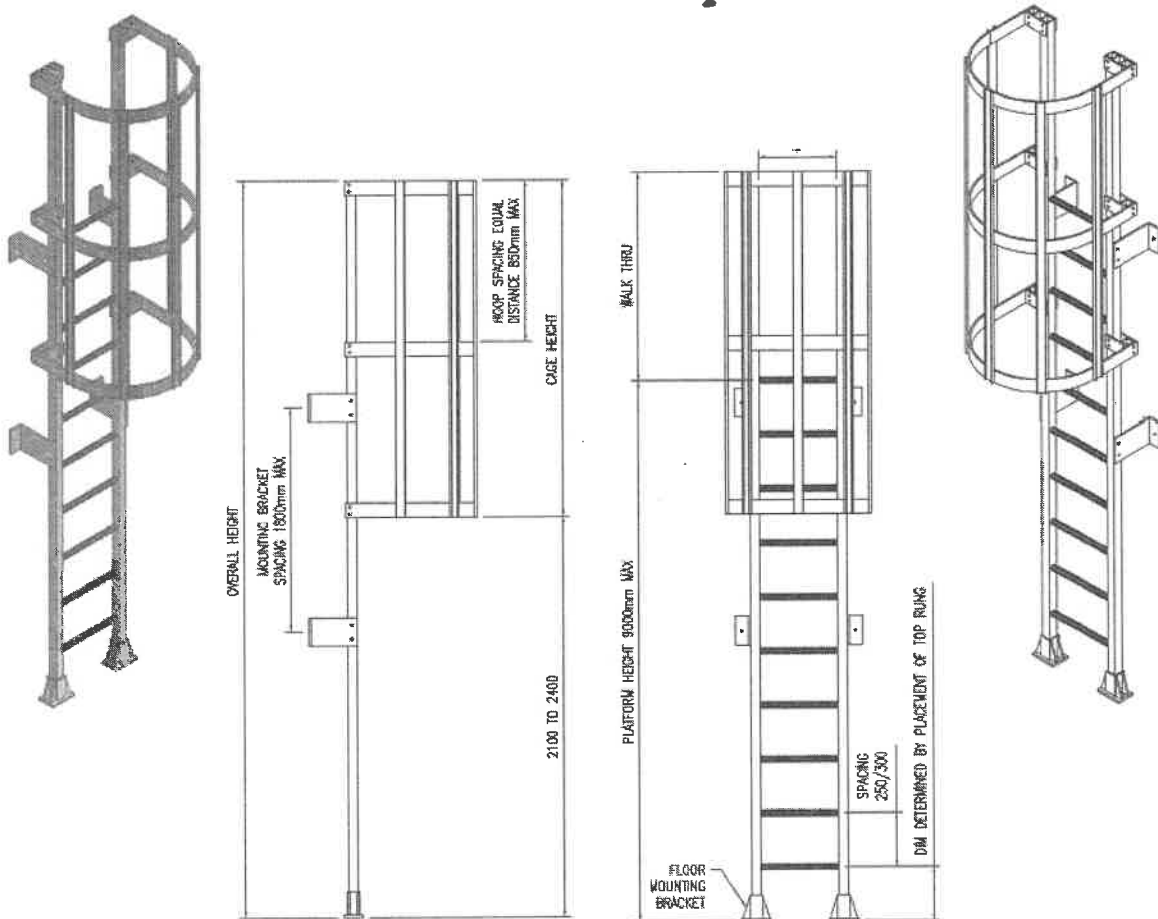
920 INSPECTION

- Notice for inspection (minimum): 3 days.

930 DOCUMENTATION

- Operation and maintenance instructions: Submit.
- Record drawings: Submit.

10.6. CAT LADDER – ROOM 3.17



GALVANISED STEEL CAT LADDER INCLUSIVE OF SAFETY CAGE, FITTED TO BRICKWORK ALL AS PER *GRATING WORLD* OR SIMILAR APPROVED, TO FIT A HEIGHT OF 3,6M FLOOR TO FLOOR.

GRATING WORLD (Pty) Ltd  
 132 Terrace Road - Sebenza - Edenvale P O Box  
 9748 - Edenglen - 1613  
 South Africa  
 Tel: +27 11 452 1150/456 5250  
 Fax: +27 11 452 2536

## 11. R : PLASTERING, SCREEDS AND COATINGS

### 11.1. DECORATIVE / FINISHING PLASTER COATINGS

#### 11.1.1. MARMORAN 1mm PERMASUEDE – ONTO NEW CEMENTPLASTER

Clean all facades to remove all loose and friable material as well as dirt and grime. Ensure moisture content is below <15%. Apply one coat Marmoran RLP Primer. Apply Marmoran 1mm PERMASUEDE to match the approved colour & pattern of Marmoran Sample. Once cured apply one to two coats of Marmoran Universal Glaze, crosshatch to ensure even coverage. This product is to carry an international guarantee of 10 years and is to be applied by a Marmoran Licensed applicator.

#### 11.1.2. MARMORAN PERMASUEDE – ONTO FIBER CEMENT

Prior to the application ensure the fiber cement boards have limited movement, fixing to the boards need to be counter sunk and all joints are to be left exposed on the paneling, acrylic coatings have limited movement capability and thus will crack during joint movement. Any exposed edges / areas including the reverse side of the board if exposed needs to be coating with Marmoran Marmoclad. spot prime with universal undercoat.

Ensure Moisture content below <15%. "Exposed Areas" – Apply one coat Marmoran Acrylic Primer. Allow to cure. Apply two coats Marmoran Marmoclad, allow drying time between coats. Spot prime fittings with one coat Marmoran Universal Undercoat. Apply one coat of Marmoran's RBP Masonary Primer. Once cured, Apply Marmoran Permasuede to match approved colour & pattern of Marmoran Sample. Once cured, apply one to two coats of Marmoran Universal Glaze, Crosshatch to ensure even coverage. This product is to carry an international guarantee of 10 years and is to be applied by a Marmoran Licensed Applicator.

## 12. S : TILING

### 12.1. S10 Stone/ Concrete/ Quarry/ Ceramic/ Mosaic tiling

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

#### TYPES OF TILING/ MOSAIC

##### 311 TILING TO -

- Tiles: -.
- Manufacturer/ Supplier: -.
- Product reference: -.
- Colour: -.
- Finish: -.
- Size: -.
- Thickness: -.
- Slip potential:  
Slip resistance value (SRV) (minimum)/ Pendulum test value (PVT) (minimum) to BS 7932: -.
- Surface roughness (Rz) (minimum): -.
- Background/ Base: -.
- Preparation: -.
- Bedding: -.
- Reinforcement: -.
- Adhesive: -.
- Joint width: -.
- Grout: -.
- Type/ classification: -.

- Movement joints: -.
- Accessories: -.

## 330 MORTAR BEDDING

- Bedding mix:
  - Cement: Portland to SANS 50197-1 type CEM I/42.5.
  - Sand: To SANS 1090 or SANS 1083 as appropriate.
  - Grading designation: 0/4 (MP) category 1 fines and between 20%-66% passing a 0.5 sieve.
- Batching: Select from:
  - Batch by weight.
  - Batch by volume: Permitted on the basis of previously established weight: volume relationships of the particular materials. Use accurate gauge boxes. Allow for bulking of damp sand.
- Mixing: Mix materials thoroughly to uniform consistence. Use a suitable forced action mechanical mixer. Do not use a free fall type mixer.
- Application: At normal temperatures use within two hours. Do not use after initial set. Do not re-temper.

## 350 PROPRIETARY TILE ADHESIVE MIX

- Type: As recommended by the tile manufacturer.
- Manufacturer: Ezee Tile Adhesive or similar approved.
- Product reference: Pro Grip SUPERBOND.
- Mixing: Mix thoroughly as recommended by the manufacturer.

## 370 PROPRIETARY GROUTING MIX

- Type: As recommended by the tile manufacturer.
- Manufacturer: Submit proposals.
- Product reference: Submit proposals.
- Colour: Submit proposals.
- Mixing: Mix thoroughly. Use the quantity of clean water recommended by the manufacturer.

## 380 STRIP MOVEMENT JOINTS -

- Manufacturer: Kirk Marketing or similar approved.
- Product reference: As per schedule.
- Colour: As per schedule.
- Joint width: 6mm.
- Fixing to base: Bed in adhesive and screw to base.
- Joints: Extend through tiles and bedding to base.

## 390 SEALANT FOR MOVEMENT JOINTS

- Sealant:
  - Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
  - Colour: Manufacturer's standard colour range.
- Preparation and application: As section Z22.

## EXECUTION

### 601 CONTROL SAMPLES

- General: Complete sample areas, being part of finished work, in locations as follows: Ablutions, corridors.

### 605 SUITABILITY OF BACKGROUNDS/ BASES

- Background/basetolerances: To permit specified flatness/regularity of finished surfaces given the permissible minimum and maximum thickness of bedding.

### 607 FALLS IN THE BASES

- General: Give notice if falls are inadequate.

## PREPARATION

### 624 NEW IN SITU CONCRETE

- Backgrounds/bases to be tiled: Remove mould oil, surface retarders and other materials incompatible with bedding.

### 626 NEW PLASTER

- Plaster: Dry, solidly bedded, free from dust and friable matter.
- Plaster primer: Apply if recommended by adhesive manufacturer.

### 628 PLASTERBOARD BACKGROUNDS

- Boards: Dry, securely fixed and rigid with no protruding fixings and face to receive decorative finish exposed.

### 632 HACKING FOR KEY

- Keying: Roughen backgrounds thoroughly and evenly to a depth of 3 mm.
- Backgrounds to be keyed: -.

### 634 RAKING OUT FOR KEY

- Soft joints in existing masonry: Rake out to a depth of 13 mm (minimum).

### 648 SMOOTHING UNDERLAYMENT

- Type: Recommended by adhesive manufacturer.
- Condition: Allow to dry before tiling.

## FIXING

### 660 FIXING GENERALLY

- Colour/ shade: Unintended variations within tiles for use in each area/ room are not permitted.
- Variegated tiles: Mix thoroughly.
- Adhesive: Compatible with background/ base. Prime if recommended by adhesive manufacturer.
- Cut tiles: Neat and accurate.
- Fixing: Provide adhesion over entire background/ base and tile backs.
- Final appearance: Before bedding material sets, make adjustments necessary to give true, regular appearance to tiles and joints when viewed under final lighting conditions.
- Surplus bedding material: Clean from joints and face of tiles without disturbing tiles.

### 662 SETTING OUT

- Joints: True to line, continuous and without steps.
- Joints on walls: Horizontal, vertical and aligned round corners.
- Joints in floors: Parallel to the main axis of the space or specified features.
- Cut tiles: Minimize number, maximize size and locate unobtrusively.
- Joints in adjoining floors and walls: Align.
- Joints in adjoining floors and skirtings: Align.
- Movement joints: Where locations are not indicated, submit proposals.
- Setting out of Ablutions : Refer to architects drawings
- Setting out of n/a : Submit proposals.

### 664 LEVEL OF FLOOR TILING

- Permissible deviation in level from datum: max 10mm.

### 666 FLATNESS/ REGULARITY OF TILING

- Sudden irregularities: Not permitted.
- Deviation of surface: Measure from underside of a 2 m straightedge placed anywhere on surface. The



straightedge should not be obstructed by the tiles and no gap should be greater than 3 mm.

## 668 LEVEL OF TILING ACROSS JOINTS

- Deviation (maximum) between tile surfaces either side of any type of joint:
  - 1 mm for joints less than 6mm wide.
  - 2 mm for joints 6mm or greater in width.

## 700 THIN BED ADHESIVE - RIBBED (WALLS)

- Application: Apply 3 mm floated coat of adhesive to dry background in areas of approximately 1 m<sup>2</sup>. Trowel to ribbed profile.
- Tiling: Press tiles firmly onto float coat.

## 708 THICK BED ADHESIVE - SOLID (WALLS)

- Application: Apply floated coat of adhesive to dry background. Comb surface.
- Tiling: Apply thin even coat of adhesive to backs of dry tiles. Press tiles firmly onto float coat.
- Finished adhesive thickness: Within range recommended by manufacturer.

## 712 THICK BED ADHESIVE - SOLID (FLOORS)

- Application: Apply floated coat of adhesive to dry base and comb surface.
- Tiling: Apply coat of adhesive to backs of tiles filling depressions or keys. Press tiles firmly into position.
- Finished adhesive thickness: Within range recommended by manufacturer.

## MOVEMENT JOINTS/ GROUTING/ COMPLETION 740

### GROUTING

- Sequence: Grout when bed/adhesive has set sufficient to prevent disturbance of tiles.
- Joints: 6 mm deep (or depth of tile if less). Free from dust and debris.
- Grouting: Fill joints completely, tool to profile, clean off surface. Leave free from blemishes.
- Profile: Flush.
- Polishing: When grout is hard, polish tiling with a dry cloth.

### 742 COLOURED GROUT

- Staining of tiles: Not permitted.
- Evaluating risk of staining: Apply grout to a few tiles in a small trial area. If discoloration occurs apply a protective sealer to tiles and repeat trial.

### COMPLETION

#### 910 MAINTENANCE MANUAL

- Incorporate details within the Building Manual to include:
  - Contact details for subcontractors and suppliers.
  - Product information for components and materials including manufacturers' literature.
  - A full set of construction drawings, updated to include any changes made up to the time of completion.
- User instructions include the following:
  - Cleaning methods and materials.

#### 920 SPARES

- General: At Completion supply the following: ??? m<sup>2</sup> tiles for system S10/???

## 13. T : PLUMBING / DRAINAGE / PIPED SERVICES

### 13.1. T10 Rainwater drainage systems

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

## GENERAL

### 110 GRAVITY RAINWATER DRAINAGE SYSTEM

- Rainwater outlets: Rainwater collector units.
- Gutters: Aluminium.
- Pipework: PVC.
- Below ground drainage: As per Eng. details.
- Disposal: To rainwater storage tanks where appropriate.
- Controls: Not applicable.
- Accessories: -.

### 121 SIPHONIC RAINWATER DRAINAGE SYSTEM

- Rainwater outlets: Proprietary.
- Gutters: Aluminium.
- Pipework: HDPE.
- Below ground drainage: As per Eng. Details.
- Accessories: as recommended by manufacturer.

## SYSTEM PERFORMANCE 210

### DESIGN

- Design: Complete the design of the rainwater drainage system.
- Standard: To National Building Regulations.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

### 221 COLLECTION AND DISTRIBUTION OF RAINWATER

- General: Complete, and without leakage or noise nuisance.

### 230 DESIGN PARAMETERS - GENERAL

- Roof and gutter construction and finish: Aluminium .
- Design criteria: Rainfall intensity and frequency of storm conditions to satisfy a 1 in 50 year return condition.
- Design life of building: 30 years.
- Available capacity of existing below ground drainage (maximum): -.

## 241 DESIGN PARAMETERS - SIPHONIC RAINWATER DRAINAGE SYSTEM

- System designer: Geberit or similar approved.
- System design: To operate on siphonic principles so as to be regularly self-cleansing in normal use.
- Pipework:
  - Airtight at maximum and minimum operating pressures.
  - To accommodate thermal movement without damage to fixings and joints or excess stress, abrasion or noise.
- Design water depth after design rainfall of 2 minutes duration (maximum): -.
- Overflow arrangements: Weirs.
- Siphonic flow velocity (minimum): -.
- Pressure imbalance (maximum): -.
- Operational pressure (maximum): -.

## PRODUCTS

### 360 SEALANT FOR GUTTERS

- Type: Submit proposal.

### 365 PROPRIETARY RAINWATER OUTLETS

- Manufacturer: Geberit or similar approved.
- Product reference: Pluvia.
- Roof construction: Gravel on insulation on waterproofing on concrete deck / aluminium purpose made gutters.
- Roof insulation thickness: 50mm.
- Type of grate/ Fittings: Raising pieces to suit insulation thicknesses.
- Outlet: Type and direction to suit pipework with suitable adaptors and connections.
- Accessories: -.

### 415 HDPE PIPEWORK FOR INTERNAL USE

- Standard: To SANS 4427
- Manufacturer: Geberit or similar approved.
- Product reference: Submit proposals.
- Nominal size: as per specialist design.
- Brackets: as per manufacturer's recommendation.
- Fixings: as per manufacturer's recommendation. Size: as per manufacturer's recommendation.
- Accessories: -.

### 465 RAINWATER STORAGE TANKS

- Manufacturer: Submit proposals.
- Product reference: Submit proposals.
- Mounting: on concrete slab.
- Capacity: As per Civil engineer requirements
- Inlet pipes: Submit proposals.
- Outlet pipes: Submit proposals.
- Overflow and vent pipes: Submit proposals.
- Pumps and strainers: Submersible pump for discharge to main line above tank invert proposes.

## EXECUTION

### 600 PREPARATION

- Work to be completed before commencing work specified in this section:
  - Below ground drainage. Alternatively, make temporary arrangements for dispersal of rainwater without damage or disfigurement of the building fabric and surroundings.
  - Painting of surfaces which will be concealed or inaccessible.

## 605 INSTALLATION GENERALLY

- Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
- Plastics and galvanized steel pipes: Do not bend.
- Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
- Protection:
  - Fit purpose made temporary caps to prevent ingress of debris.
  - Fit access covers, cleaning eyes and blanking plates as the work proceeds.

## 610 FIXING AND JOINTING GUTTERS

- Joints: Watertight.
- Brackets: Securely fixed.
  - Fixings: dependant on substrate.
- Fixing centres: 450mm.
  - Additional brackets: Where necessary to maintain support and stability, provide at joints in gutters and near angles and outlets.
- Roofing underlay: Dressed into gutter.

## 615 SETTING OUT EAVES GUTTERS - TO FALLS

- Setting out: To true line and even gradient to prevent ponding or backfall. Position high points of gutters as close as practical to the roof and low points not more than 50 mm below the roof.
- Outlets: Align with connections to below ground drainage.

## 616 SETTING OUT EAVES GUTTERS - LEVEL

- Setting out: Level and as close as practical to the roof.
- Outlets: Aligned with connections to below ground drainage.

## 625 INSTALLING PREFORMED GUTTER LININGS

- Substrate: 12 mm WBP plywood with 6 mm open joints on New Court Building gutters.
- Preparation: Securely fix loose timber boards or sheets.
  - Defective areas of existing substrates: Give notice.
- Outlets: Part of syphonic system.
- Jointing: -.
- Installation: -.

## 630 INSTALLING RAINWATER OUTLETS

- Fixing: Secure. Fix before connecting pipework.
  - Method: Support plate and clamp.
- Junctions between outlets and pipework: Accommodate movement in structure and pipework.

## 635 FIXING PIPEWORK

- Pipework: Fix securely, plumb and/ or true to line.
- Branches and low gradient sections: Fix with uniform and adequate falls to drain efficiently.
- Externally socketed pipes and fittings: Fix with sockets facing upstream.
- Additional supports: Provide as necessary to support junctions and changes in direction.
  - Provide a load-bearing support at least at every storey level.
  - Tighten fixings as work proceeds so that every storey is self supporting.
  - Wedge joints in unsealed metal pipes to prevent rattling.
- Wall and floor penetrations: Isolate pipework from structure.
  - Pipe sleeves: As section Z15.
  - Masking plates: Fix at penetrations if visible in the finished work.
- Expansion joint pipesockets: Fix rigidly to buildings. Elsewhere, provide brackets and fixings that allow pipes to slide.

## 640 FIXING VERTICAL PIPEWORK

- Clearance: Fix pipework 25mm clear of wall/ soffit surface

- Bracket fixings: Plugged and screwed into masonry.
- Distance between bracket fixing centres (maximum): as recommended by manufacturer.

## 645 FIXING LOW GRADIENT PIPEWORK

- Bracket fixings: Bolted into masonry.
- Distance between bracket fixing centres (maximum): as recommended by manufacturer.

## 650 JOINTING PIPEWORK AND GUTTERS

- General: Joint with materials and fittings that will make effective and durable connections.
- Jointing differing pipework and gutter systems: Use adaptors intended for the purpose.
- Cut ends of pipes and gutters: Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring sealsockets.
- Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.
- Junctions: Form with fittings intended for the purpose.
- Jointing material: Strike off flush. Do not allow it to project into bore of pipes and fittings.
- Surplus flux, solvent jointing materials and cement: Remove.

## 655 JOINTING INTERNAL PIPEWORK

- Jointing: HDPE - Electrofusion sleeve welded.

## 670 INSTALLING SIPHONIC DRAINAGE PIPEWORK

- Fixing: Secure. Prevent movement during extreme operating conditions including oscillating pressure and cavitation. Provide for thermal movement.
- Number of joints, bends and offsets: Minimize.
- Condition on completion: Smooth, consistent bore, clean and free from distortion, wrinkling, cracks and other defects.

## 685 IDENTIFICATION OF INTERNAL RAINWATER PIPEWORK

- Markings: To SANS 10140.

- Type: Black, with arrows to indicate direction of flow.

- Wording: White lettering 'RAINWATER DRAINAGE' on a black background.
- Type: Permanent; integral or painted pipe colour, self-adhesive bands or identification clips.
- Locations: Junctions, both sides of slabs, bulkheads and wall penetrations.

## 690 ELECTRICAL CONTINUITY - PIPEWORK

- Joints in metal pipes with flexible couplings: Clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.

## 695 ELECTRICAL CONTINUITY - GUTTERS

- Joints in metal gutters: Purpose made links supplied by the gutter manufacturer to ensure electrical continuity.

## 700 ACCESS FOR TESTING AND MAINTENANCE

- General: Install pipework and gutters with adequate clearance to permit testing, cleaning and maintenance, including painting where necessary.
- Access fittings and rodding eyes: Position so that they are not obstructed.

## COMPLETION

### 900 TESTING GENERALLY

- Dates for testing: Give notice.
- Period of notice (minimum): 2 days.
- Preparation:
  - Pipework: Complete, securely fixed, free from defects, obstruction and debris before testing.
- Testing:
  - Supply clean water, assistance and apparatus.
  - Do not use smoke to trace leaks.
- Records: Submit a record of tests.

## 905 INTERNAL PIPEWORK TEST

- Preparation: Temporarily seal open ends of pipework with plugs.
- Test apparatus: Connect a 'U' tube water gauge and air pump to pipework via a plug.
- Testing: Pump air into pipework until gauge registers 38 mm.
- Required performance:
  - Allow a period for temperature stabilization, after which the pressure of 38 mm is to be maintained without loss for at least 3 minutes.

## 910 GUTTER TEST

- Preparation: Temporarily block all outlets.
- Testing: Fill gutters to overflow level and after 5 minutes closely inspect for leakage.

## 915 MAINTENANCE INSTRUCTIONS

- General: At completion, submit printed instructions recommending procedures for maintenance of the rainwater installation, including full details of recommended inspection, cleaning and repair procedures.

## 920 IMMEDIATELY BEFORE HANDOVER

- Construction rubbish, debris, swarf, temporary caps and fine dust which may enter the rainwater system: Remove. Do not sweep or flush into the rainwater system.
- Access covers, rodding eyes, outlet gratings and the like: Secure complete with fixings.

## 13.2. T60 Sanitary appliances/ fittings

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

### PRODUCTS

- Refer to Architect's Sanitary Schedules

### SEALANT

#### 480 SEALANT FOR POINTING

- Standard: EN ISO 11600.
- Class: F20 HM.
- Type: silicone.
- Manufacturer: Submit proposals.
- Product reference: Submit proposals.
- Colour: To match sanitary ware.

### EXECUTION

#### 610 INSTALLATION GENERALLY

- Assembly and fixing: Surfaces designed to fall to drain as intended.
- Fasteners: Nonferrous or stainless steel.
- Supply and discharge pipework: Fix before appliances.
- Fixing: Fix appliances securely to structure. Do not support on pipework.
- Jointing and bedding compounds: Recommended by manufacturers of appliances, accessories and pipes being jointed or bedded.
- Appliances: Do not use. Do not stand on appliances.
- Leave protective coverings, tapes etc. on appliances during installation.
- Protect completed installation from use, damage and the ingress of debris.

#### 615 COMPATIBILITY OF COMPONENTS

- General: Each sanitary assembly must consist of functionally compatible components, preferably obtained from a single manufacturer.

- Exceptions: n/a.

## 620 NOGGINGS AND BEARERS

- Noggings, bearers, etc. to support sanitary appliances and fittings: Position accurately. Fix securely.

## 625 TILED BACKGROUNDS OTHER THAN SPLASHBACKS

- Timing: Complete before fixing appliances.
- Fixing appliances: Do not overstress tiles.

## 645 INSTALLING CISTERNS

- Cistern operating components: Obtain from cistern manufacturer.
- Float operated valve: Matched to pressure of water supply.
- Overflow pipe: Fixed to falls and located to give visible warning of discharge.
- Location: Agreed, where not shown on drawings.

## 650 INSTALLING TAPS

- Fixing: Secure against twisting.
- Seal with appliance: Watertight.
- Positioning: Hot tap to left of cold tap as viewed by user of appliance.

## 655 INSTALLING WASTES AND OVERFLOWS

- Bedding: Waterproof jointing compound.
- Fixing: With resilient washer between appliance and backnut.

## 680 SEALANT BEDDING AND POINTING

- Bedding: Bed and point basins to underside of vanity units and Bed sinks to top of worktops
- Pointing:
  - Joints between appliances and splashbacks;
  - Joints between appliances and walls; and
  - Joints between appliances and floors.

## COMPLETION

### 910 HANDOVER

- Immediately before handover, remove protective coverings, tapes, labels etc. and check for damage and defects.
- Flush out the whole installation and clean all fixtures and fittings immediately before handing over.

### 912 COMPLETION TEST

- On completion: Check that all components and accessories work correctly with no leaks.
- Test for satisfactory operation and replace all damaged or defective components/ accessories.

### 920 MAINTENANCE MANUAL

- Incorporate details within the Building Manual to include:
  - Contact details for subcontractors and suppliers.
  - Product information for components and materials including manufacturers' literature and recommendations for cleaning maintenance and repair.
  - The terms and conditions of any guarantee.
  - Method statement covering the procedures for replacement of parts that have a design life less than the design life of the curtain wall system.
  - Recommendations for routine maintenance and cleaning, including suitable cleaning agents.
  - Schedule of inspection requirements
- Record book for listing defects, maintenance and repairs.

## 14. W : GLAZING

## 14.1. W10 General glazing and mirrors

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

### GLAZING METHODS/ SYSTEMS PRODUCTS/ MATERIALS

#### 310 GLASS GENERALLY

- Standards: To the relevant parts of:
  - SANS 50572 for basic soda lime silicate glass.
  - EN 1096 for coated glass.
  - EN 1748-1-1 for borosilicate glass.
  - EN 1748-2-1 for ceramic glass.
  - EN 1863 for heat strengthened soda lime silicate glass.
  - EN 12150 for thermally toughened soda lime silicate safety glass.
  - EN 12337 for chemically strengthened soda lime silicate glass.
  - EN 13024 for thermally toughened borosilicate safety glass.
  - EN ISO 12543 for laminated glass and laminated safety glass.
- Panes/ sheets: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.
- Edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

#### 325 TOUGHENED GLASS Toughened solar control glass

- Manufacturer: Submit proposals.
- Product reference: Submit proposals.

#### 330 LAMINATED GLASS Safety glass (NS)

- Manufacturer: Submit proposals.
- Product reference: Submit proposals.

#### 340 SOLAR CONTROL GLASS

- Manufacturer: Submit proposals.
- Product reference: Submit proposals.

### EXECUTION

#### 612 PREGLAZING

- Preglazing of components: Permitted.
- Prevention of displacement: Submit details of precautions to be taken to protect glazing and compound/ seals during delivery and installation.
- Defective/ displaced glazing/ compound/ seals: Reglaze components in situ.

#### 620 WORKMANSHIP GENERALLY

- Glazing generally: To SANS 10137.
- Integrity: Glazing must be wind and watertight under all conditions with full allowance made for deflections and other movements.
- Dimensional tolerances: Panes/ sheets to be within  $\pm 2$  mm of specified dimensions.
- Materials:
  - Compatibility: Glass/plastics, surround materials, sealers, primers and paints/ clear finishes to be used together to be compatible. Avoid contact between glazing panes/ units and alkaline materials such as cement and lime.
  - Protection: Keep materials dry until fixed. Protect insulating glass units and plastics glazing sheets from the sun and other heat sources.

#### 686 FIRE RESISTANT GLAZING

- Installation: By a firm registered under a certified accreditation scheme for the installation of



fire resistant glazing, in accordance with glazing manufacturer's recommendations.

#### 700 FIXING MIRRORS

- Installation: Fixed accurately and securely without over tightening fasteners, to provide a flat surface giving a distortion free reflection.

#### COMPLETION

#### 905 CLEANING

- Clean all glass immediately prior to handover.
- Clean and polish both sides of all glass and mirrors on completion

#### 910 PROTECTION

- Provide glazing completed adhesive stickers or whiting to indicate glazed areas prior to handover.
- Do not use lime or alkaline materials.
- Protect from harmful splashes, mechanical damage, scratching and weld spatter.

#### 920 MAINTENANCE MANUALS

- Provide details of the recommended maintenance procedures, materials and timescales.

## 14.2. Curtain wall and General Office Glazing

- "PG SmartGlass™" (Single glazed)- 8,76mm SolarVue Neutral HL Low E Soundprufe HPR



DESIGNSCAPE ARCHITECTS

DATE: 23rd May 2016

	External Colour	*IGDB Code	Visible Trans. %	Visible Reflec. (Ext.) %	Direct Solar Trans. %	Absorb	Solar Reflec. %	Relative Heat Gain (W/m2)	S.H.G.C	Shading Coeff.	U-value (W/m2.K)	S.T.L. (DB)
1) "PG SmartGlass™" (Single glazed): 8,76mm SolarVue Neutral HL Low E Soundprufe HPR	Grey		43	14	32	58	9		0,43	0,49	3,70	37

### 14.3. Atrium and rooflights / skylights Glazing

- ☑ For the top / horizontal plane:
  - 13.52mm SOLAR E GREY PLUS ARMOURLAM HI
- ☑ For the spider clamp glazing to the sides of the atrium:
  - 13.52mm SOLAR E CLEAR ARMOURLAM HI



PROJECT: DURBAN HIGH COURT  
CUSTOMER: DESIGNSCAPE

Prepared by: J Goosen 22nd Sept 2015  
PG Building Glass Solutions  
(082) 442 7355 or 031 7001404

Product Composition		13.52mm SOLAR E GREY PLUS ARMOURLAM HI	13.52mm SOLAR E CLEAR ARMOURLAM HI		
Visible Transmission	%	24	60		
Visible Reflection (external)	%	05	08		
Solar Total Elimination	%	86	47		
Solar Reflection	%	05	07		
Solar Absorption	%	76	49		
Direct Solar Transmission	%	19	44		
S. H. G. C.		0.34	0.53		
Shading Coefficient		0.39	0.61		
U - Value (Centre of Glass)	W/m <sup>2</sup> .K	3.70	3.70		
Sound Transmission Loss (Mean 100 - 5000 Hz)	dB				

Above values have been calculated assuming NFRC 100-2010 design parameters, and are given as an indication only. U-Values quoted are "centre of glass", and exclude any frame effects. SANS 204 should be consulted for U-Values of glazed fenestrations. Slight variations may occur due to manufacturing tolerances. All safety glass supplied by Glass South Africa complies with the requirements of SANS 1263 Pt 1 and is manufactured according to an ISO 9001 Quality Management System. Thermal safety guarantees are available on application. It is recommended that all CoolVue, Solarshield, SolarVue, Solar E, InsulVue and ColourVue glazing systems are checked for thermal safety at the design stage of all projects.

## 15. X : PAINTWORK AND APPLIED FINISHES

### 15.1. X10 Painting/ Clear finishing

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

#### PAINTING SYSTEMS

#### SYSTEM PERFORMANCE 210

#### DESIGN

- General: Complete the design of the coating system in accordance with SANS 10305-5 and SANS 12944/ISO 12944-8.
- Proposals: Submit schedules, drawings and manufacturer's literature.

#### 211 DESIGN LIFE - WALL COATINGS

- Design life (assuming reasonable wear and tear and regular maintenance: 7 years.
- External environmental category in accordance with SANS 12944/ISO 12944-2: C5M.
- Internal environmental: Determine on site.

#### 212 GLOSS LEVEL DEFINITIONS

- Standard: EN ISO 2813:
  - Under 5% gloss - Matt.
  - 5-20% gloss - Eggshell.
  - 15-35% gloss - Satin.

- 30-65% gloss - Semi Gloss.
- 65-80% gloss - Gloss.
- Over 80% gloss - High Gloss.

## MATERIALS/ PRODUCTS

### 310 COATING MATERIALS

- Manufacturers: Obtain materials from any of the following: Plascon paints or similar approved.
- Selected manufacturers: Submit names before commencement of coating work.

### 315 COMPATIBILITY

- Coating materials selected by contractor:
  - Recommended by their manufacturers for the particular surface and conditions of exposure.
  - Compatible with each other.
  - Compatible with and not inhibiting performance of preservative/fire retardant pretreatments.

### 612 SUPERVISED CONTROL SAMPLES

- Sample areas of finished work: Carry out, including preparation, as follows: Types of coating Nature of sample X10/ -- TBA with Architect
- Inspection: Give notice when each stage is ready for inspection.
- Approval of appearance: Obtain before commencement of general coating work.

### 614 INSPECTION BY COATING MANUFACTURERS

- General: Permit manufacturers to inspect work in progress and take samples of their materials from site if requested.

### 618 HANDLING AND STORAGE

- Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.
- Materials from more than one batch: Store separately. Allocate to distinct parts or areas of the work.

## PREPARATION

### 630 PREPARATION GENERALLY

- Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
- Surfaces to be dry, sound and clean.
  - Cure cement plaster for minimum 14 days.
  - Cure concrete for minimum 28 days.
- Check moisture content against coating manufacturer's recommendations.
- Substrates: Sufficiently dry in depth to suit coating.
- Efflorescence salts: Remove.
- Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
- Surface irregularities: Abrade to a smooth finish.
- Joints, cracks, holes and other depressions: Fill with stoppers/ fillers. Work well in and finish off flush with surface. Abrade to a smooth finish.
- Dust, particles and residues from abrasion: Remove.
- Water-based stoppers and fillers:
  - Apply before priming unless recommended otherwise by manufacturer.
  - If applied after priming: Patch prime.
- Oil-based stoppers and fillers: Apply after priming.
- Doors, opening windows and other moving parts:
  - Ease, if necessary, before coating.
  - Prime resulting bare areas.

## 640 UNCOATED CONCRETE

- Release agents: Remove.
- Efflorescence salts: Remove.
- Polished surfaces: apply bonding liquid.

## 642 UNCOATED MASONRY/ RENDERING

- Loose and flaking material: Remove.
- Efflorescence salts: Remove.

## 644 UNCOATED CEMENT AND GYPSUM PLASTER

- Nibs, trowel marks and plaster splashes: Scrape off.
- Overtrowelled 'polished' areas: Abradelightly.

## 646 UNCOATED PLASTERBOARD

- Depressions around fixings: Fill with stopper/filler.
- Joints: Fill, tape and feather out with materials recommended by coating manufacturer.

## 650 PREPRIMED WOOD

- Areas of defective primer: Abrade back to bare wood and reprime.

## 652 UNCOATED WOOD

- General: Abrade to a smooth, even finish with arrises and moulding edges lightly rounded or eased.
- Heads of fasteners: Countersink sufficient to hold stoppers/ fillers.
- Resinous areas and knots: Apply two coats of knotting.

## 654 GALVANIZED, AND ELECTROPLATED STEEL

- White rust: Remove.
- Pre-treatment: Apply one of the following:
  - 'T wash'/ mordant solution to blacken whole surface.
  - Galvanised iron cleaner.
  - Rinse until surface is water-break free.
- Etching primer recommended by coating system manufacturer.

## 656 PREPRIMED STEEL

- Areas of defective primer, corrosion and loose scale: Abrade back to bare metal. Reprime as soon as possible.

## 672 UNCOATED PVC-U

- Dirt and grease: Remove. Do not abrade surface.

## APPLICATION

### 700 COATING GENERALLY

- Application standard: To SANS 10305-2.
- Conditions: Maintain suitable temperature, humidity and air quality during application and drying.
- Surfaces: Clean and dry at time of application.
- Thinning and intermixing of coatings: Not permitted unless recommended by manufacturer.
- Overpainting: Do not paint over intumescent strips or silicone mastics.
- Priming coats:
  - Thickness: To suit surface porosity.
  - Application: As soon as possible on same day as preparation is completed.
- Finish:
  - Even, smooth and of uniform colour.
  - Free from brush marks, sags, runs and other defects.
  - Cut in neatly.

## 710 COATING CONCRETE, MASONRY AND PLASTER SURFACES

- General: Apply coatings evenly to give a smooth finish, uniform colour, free from defects.
- Cut in neatly and cleanly.
- Do not splash or mark adjacent surfaces.

## 712 PLASTERBOARD AND FIBRE CEMENT BOARD

- Prime 'H' strips and screw heads with oil-based primer.

## 720 PRIMING JOINERY

- Preservative treated timber: Retreat cut surfaces with two flood coats of a suitable preservative before priming.
- End grain: Coat liberally allow to soak in, and recoat.

## 722 WORKSHOP COATING OF CONCEALED JOINERY SURFACES

- General: Apply coatings to all surfaces of components.

## 726 STAINING WOOD

- Primer: Apply, if recommended by stain manufacturer.
- Application: Apply in flowing coats and brush out excess stain to produce uniform appearance.

## 728 VARNISHING WOOD

- First coat:
  - Thin with white spirit.
  - Brush well in and lay off avoiding aeration.
- Subsequent coats: Rub down lightly along the grain between coats.

## 730 LACQUERING WOOD

- Sand down with fine grade paper.
- First coat:
  - Thin with 10% recommended thinners.
  - Spray well in and lay off avoiding aeration.
- Stop all visible nail screw heads with natural wood stopping to match wood colour.
- Sand down and wipe clean.
- Spray apply three coats of lacquer, rub down lightly along the grain between coats.

## 740 EXTERNAL DOORS

- Bottom edges: Prime and coat before hanging doors.

## 750 BEAD GLAZING TO COATED WOOD

- Before glazing: Apply first two coats to rebates and beads.

## 780 SEALING OF INTERNAL MOVEMENT JOINTS

- General: To junctions of walls and ceilings with architraves, skirtings and other trims.
- Sealant: Water-based acrylic.

Preparation and application: As section Z22. COMPLETION

## 910 SPARES AND CONSUMABLES

- Coatings: Supply 10 L of each finishing coat.
- Labels on containers: Required.

## 920 COMPLETION

- Opening lights and moving parts: To move freely.
- Remove: Masking tape and temporary coverings.

## 922 PROTECTION

- Protection: To all surfaces that have been coated.
- 'Wet paint' signs and barriers: Provide where necessary to protect other operatives and general public.
- Freshly applied coatings: Prevent damage.

## 925 WARNING SIGNS

- Anti-climb paint: Identify with warningsigns.

## 930 MAINTENANCE MANUAL

- Incorporate details within the Building Manual to include:
  - Contact details for subcontractors and suppliers.
  - Product information for components and materials including manufacturers' literature and recommendations for cleaning and maintenance.
  - The terms and conditions of any guarantee.

## 15.2. X31 Protective coatings

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

### COATING SYSTEMS

#### 111 EPOXY ACRYLIC COATING

- Manufacturer: CHEMCO OR SIMILAR APPROVED
- Location: TO EXTERNAL METALWORK.
- Product: RC 500GTC, TWO PACK EPOXY ACRYLIC COATING, VOC COMPLIANT, WET & RUST TOLERANT PRIMER & FINISH ALL-IN-ONE
- Surfaces: Preprimed and sealed.
- Preparation: ALL SURFACES TO BE COATED MUST BE CLEAN AND FREE FROM CONTAMINATION.  
HIGH PRESSURE FRESH WATER WASH OR FRESH WATER WASH AS AN APPROPRIATE TO REMOVE ALL SOLUBLE CONTAMINANTS AND OTHER FOREIGN MATTER.
- Finishing:
  - Colour: WHITE, SEMI SHEEN.

### EXECUTION

#### 610 CONTROL SAMPLES

- Sample areas of finished work: Carry out, including preparation, as follows:
- Approval of appearance: Obtain before commencement of general coating work.

#### 614 INSPECTION BY COATING MANUFACTURERS

- General: Permit manufacturers to inspect work in progress and take samples of their materials from site if requested.

#### 620 HANDLING AND STORAGE

- Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.
- Materials from more than one batch: Store separately. Allocate to distinct parts or areas of the work.

#### 622 COMPATIBILITY

- Coating materials selected by contractor:
  - Recommended by their manufacturers for the particular surface and conditions of exposure.
  - Compatible with each other.
  - Compatible with and not inhibiting performance of preservative/fire retardant

pretreatments.

## 626 PROTECTION

- 'Wet paint' signs and barriers: Provide where necessary to protect other operatives and general public, and to prevent damage to freshly applied coatings.

## 630 PREPARATION GENERALLY

- Standard: To SANS 12944/ISO 12944 Part 4.
- Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
- Substrates: Sufficiently dry in depth to suit coating.
- Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
- Surface irregularities: Abrade to a smooth finish.
- Dust, particles and residues from abrasion: Remove.

## 642 PREPRIMED STEEL

- Areas of defective primer, corrosion and loose scale: Abrade back to bare metal. Reprime as soon as possible.

## 654 COATING GENERALLY

- Standard: to SANS 12944/ISO 12944 Part 7.
- Conditions: Maintain suitable temperature, humidity and air quality during application and drying.
- Surfaces: Clean and dry at time of application.
- Thinning and intermixing of coatings: Not permitted unless recommended by manufacturer.
- Priming coats:
  - Thickness: To suit surface porosity.
  - Application: As soon as possible on same day as preparation is completed.
- Finish:
  - Even, smooth and of uniform colour.
  - Free from brush marks, sags, runs and other defects.
  - Cut in neatly.

## 656 STRIPE COATS

- Apply stripe coats to all welds, lap joints, plate edges and all corners.

## 658 COATING CONCEALED METAL SURFACES

- General: Apply additional coatings to surfaces that will be concealed when fixed in place.

## COMPLETION

### 910 SPARES AND CONSUMABLES

- Coatings: Supply 2.5 L of each finishing coat.
- Labels on containers: Required.

### 920 MAINTENANCE MANUALS

- Provide details of the recommended maintenance procedures and timescales for each type of coating.

## 15.3. SURFACE FINISHES

### 15.4. EXPOSED STEELWORK : CORROSION PROTECTION / FINISHING COAT

#### CHEMCO :

PRODUCT : RC 500GTC, TWO PACK EPOXY ACRYLIC COATING, VOC COMPLIANT, WET & RUST TOLERANT PRIMER & FINISH ALL-IN-ONE

**COLOUR :** WHITE, SEMI SHEEN

**APPLICATION:** TWO PACK EPOXY ACRYLIC SYSTEM CONSISTING OF BASE RESIN AND HARDNER. PART A ( RESIN ) AND PART B ( HARDNER )

**METHOD:** CONVENTIONAL / AIRLESS SPRAY, BRUSH OR ROLLER

**MIXING:** PART A (RESIN) AND PART B (HARDENER) ARE SUPPLIED IN SEPARATE CONTAINERS.ALWAYS MIX PART A PRIOR TO ADDITION OF PART B. PART MIXING IS NOT RECOMMENDED UNLESS ACCURATE SCALES ARE AVAILABLE.

**SURFACE PREPARATION :** ALL SURFACES TO BE COATED MUST BE CLEAN AND FREE FROM CONTAMINATION. HIGH PRESSURE FRESH WATER WASH OR FRESH WATER WASH AS AN APPROPRIATE TO REMOVE ALL SOLUBLE CONTAMINANTS AND OTHER FOREIGN MATTER.

## 16. Y : EXTERNAL WORKS

### 16.1. Y10 Kerbs/ Edgings/ Channels/ Paving Accessories

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

#### PRODUCTS

#### 305 MATERIAL SAMPLES

- Samples representative of colour and appearance of designated materials: Submit before placing orders.
- Designated materials: All External paving elements.

#### 310 CEMENT MORTAR BEDDING

- General: To section Z21.
- Mix (Portland cement:sand): 1:3.
- Portland cement: Class CEM I 42.5 to SANS 50197-1.
- Sand: to SANS 1090.

#### 325 JOINT SEALANT

- Manufacturer: Submit proposals.
- Product reference: Submit proposals.

#### 330 PROPRIETARY PRECAST CONCRETE Copings - Seats

- Standard: To SANS 927.
- Manufacturer: Modcon or similar approved.
- Product reference: T180.
- Designations: Planter seating.
- Size (width x height x length): As per manufacturer's details.
- Special shapes: n/a.
- Finish: Polished.
- Colour: Natural.

#### 331 PROPRIETARY PRECAST CONCRETE Copings - General

- Standard: To SANS 927.
- Manufacturer: Modcon or similar approved.
- Product reference: T012.
- Designations: Planter boxes as per Architect's drawings.
- Size (width x height x length): 300 x 70 x 50 x 910 long.
- Special shapes: n/a.
- Finish: Polished.
- Colour: Natural.



## 370 TREE GRILLES

- Manufacturer: Allsorted Amenities Furniture.
- Product reference: Submit proposals.
- Size: 600x600x50 mm -4 per tree.
- Material: Galvanized steel.
- Finish: Powder coated.
- Colour: Black.
- Accessories: Vandal resistant fixings.

## 382 ROAD MARKING (LIGHT DUTY)

- Manufacturer: Submit proposals.
- Product reference: Submit proposals.
- Colour: White.
- Surfaces to receive markings: Clean and dry, loose material removed.
- Application: Uniform, with no streaks or ragged edges.

## EXECUTION 605

### ACCURACY

- Deviations (maximum):
- Level:  $\pm 6$  mm.
- Horizontal and vertical alignment: 3 mm in 3 m.

### 610 LAYING KERBS, EDGINGS AND CHANNELS

- Cutting: Neat, accurate and without spalling. Form neat junctions.
- Long units (450 mm and over) minimum length after cutting: 300 mm.
- Short units minimum length after cutting: The lower of one third of their original length or 50 mm.
- Bedding of units: Positioned true to line and levelled along top and front faces, in a mortar bed on accurately cast foundations or on a race of fresh concrete.
- Securing of units: After bedding has set, secured with a continuous haunching of concrete or on a race of fresh concrete with backing concrete cast monolithically.

### 615 ADVERSE WEATHER

- Conditions: Do not construct if the temperature is below 3°C on a falling thermometer or 1°C on a rising thermometer. Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.

### 620 CONCRETE FOR FOUNDATIONS, RACES AND HAUNCHING

- Standard: SANS 2001-CC1.
- Designated mix: Not less than 8MPa.
- Workability: Very low.

### 625 CEMENT MORTAR BEDDING

- General: To section Z21.
- Mix (Portland cement:sand): 1:3.
- Portland cement: Class CEM I 42.5 to SANS 50197-1.
- Sand: to SANS 1090.
- Bed thickness: 12-40 mm.

## COMPLETION

### 910 CLEANING

- General: Leave the works in a clean, tidy condition.
- Surfaces: Clean immediately before handover.

### 920 MAINTENANCE MANUAL

Incorporate details within the Building Manual to include:

- Contact details for subcontractors and suppliers.
- Product information for components and materials including manufacturers' literature.
- A full set of construction drawings, updated to include any changes made up to the time of completion.

## 16.2. Y24 Interlocking brick/ block roads/ pavings

### PRODUCTS/ MATERIALS

#### 310 CONCRETE PAVING BRICKS

- Blocks: To SANS 1058: -.
- Manufacturer: Corobrik or similar approved.
- Product reference: CoroCobble.
- Compressive strength class: 2535.
- Sizes: 150 x 150 x 65mm.
- Special blocks: n/a.
- Colour/ Finish: Charcoal.

#### 320 CLAY PAVERS

- Pavers: To SANS 1575: ALL.
- Manufacturer: Corobrik or similar approved.
- Product reference: PA Paver.
- Sizes: 200 x 100 x 65 mm and 200 x 100 x 50 mm.
- Special pavers: n/a.
- Colour/ Finish: Burgundy.

#### 380 GEOTEXTILE SHEET

- Manufacturer: As per Civil Eng. details.
- Product reference: As per Civil Eng. details.

#### 390 SAND FOR BEDDING

- Type: Naturally occurring clean sharp sand from the quaternary geological series or sea dredged, graded to SANS 1200 MJ paragraph 3.3.
- Purity: Free from deleterious salts, contaminants and cement.
- Procurement: Obtain from one source and ensure consistent grading.
- Moisture content: Maintain even moisture content that will give maximum compaction. Sand squeezed in the hand should show no free water and bind together when pressure is released.

#### 400 SAND FOR JOINTING

- Type: Clean free flowing dried silica sand graded to the requirements of SANS 1200 MJ.
- 100% passing a 1.18 mm sieve.
- 50% passing a 0,075 mm sieve.
- Purity: Free from deleterious salts, contaminants and cement.

#### 420 SEALER/ STABILIZER FOR NEW BLOCKS AND SETTS

- Manufacturer: Submit proposals.
- Product reference: Submit proposals.

#### 450 SAMPLES

- General: Before ordering, submit samples of all blocks/ pavers/ setts, that are representative of colour and appearance. EXECUTION

### GENERAL

## 605 COLOUR BANDING

- General: Unless premixed by manufacturer, select blocks/ pavers/ setts vertically from at least 3-5 separate packs in rotation, to avoid colour banding.

## 610 CONTROL SAMPLES

- General: Carry out sample area of finished work:
  - Location: Facing Dullah Omar Grove.
  - Size (minimum): 3.0 x 3.0 m.
  - Features to be included: Recessed manhole cover infill and Junction with building facade.
- Give notice: When ready for inspection.
- Timing: Obtain approval of appearance before proceeding.

## 614 ADVERSE WEATHER (SAND BEDDED AND JOINTED PAVING)

- Stockpiled bedding material: Protect from saturation.
- Exposed areas of sand bedding and uncompacted areas of paving: Protect from heavy rainfall.
- Sand bedding that becomes saturated before laying paving: Remove and replace, or allow to dry before proceeding.
- Damp conditions: Brush in as much jointing sand as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

## 620 BEDDING LAYER TOLERANCES AFTER FINAL COMPACTION

- 50 mm nominal thickness: +15 to -20 mm.
- 30 mm nominal thickness: +12 to -0 mm.

## 622 LEVELS OF PAVING

- Permissible deviation from specified levels:
  - Generally:  $\pm 6$  mm.
  - Height of finished paving above features:
    - At drainage channels and kerbs: +3 to +6 mm.

## 624 REGULARITY

- General: Where appropriate in relation to the geometry of the surface, variation in gap under a 3 m straight edge placed anywhere on the surface (maximum) to be 10 mm.
- Sudden irregularities: Not permitted.
- Difference in level between adjacent blocks/ pavers/ setts (maximum): 2 mm.

## 626 CONDITION OF SUB-BASES AND BASES BEFORE LAYING SAND BEDDING COURSE

- Granular surfaces:
  - Sound, clean, smooth and close-textured enough to prevent migration of sand bedding into the sub-base or overlay during compaction and use.
  - Free from movement under compaction plant and free from compaction ridges, cracks and loose material.
- Prepared existing and new bound bases (roadbases): Sound, clean, free from rutting or major cracking and cleared of sharp stones, projections or debris.
- Bound base (roadbase) surface tolerance: +0 to -12 mm.
- Levels and falls: Accurate and within specified tolerances.
- Drainage outlets: Within +0 to -10 mm of required finished level.
- Edge restraints, manhole covers, drainage outlets and the like: Complete, to required levels, and adequately bedded and haunched in mortar that has reached sufficient strength.
- Haunching to gullies, manhole covers and inside face of edge restraints: Vertical, so that pavings do not 'ride up' when compacted.

## 642 TOOLED JOINTS IN MORTAR BEDDED UNITS

- Jointing: Butter ends of units with bedding mortar as work proceeds, to completely fill joints.

- Joint width: 6 mm.
- Finish: Tool to a neat flush profile.

## 652 LAYING GEOTEXTILES

- Laying: Fit neatly at edge restraints and other features that interrupt the sand bedding course, e.g. drainage fittings, channels, manholes and kerbs.
- Edgedetail: Turn sheet up to form an upstand against features, height not less than thickness of sand bedding

## 660 LAYING BEDDING GENERALLY

- Site trial: Determine by trial the depth of loose bedding material needed to ensure specified bedding course thickness after final compaction of paving.
- Bedding materials: Do not deliver to working area over uncompacted paving.
- Bedding course prepared area: 1 m (minimum) to 3 m (maximum) in advance of laying face, and 1 m (maximum) at end of working period.
- Saturated bedding: Not allowed. Remove and replace or allow to dry before laying paving.
- Protection of prepared bedding course: Do not allow traffic or leave exposed. Fill, rescreed and recompact areas disturbed by removal of screed rails or trafficking. Lay blocks/ pavers/ setts immediately.

## 662 LAYING BEDDING (PRECOMPACTED)

- General: Spread bedding material in one loose layer. Compact with a plate compactor. Make allowance for a reduction in the thickness achieved during compaction. Level the surface by screeding.

## 664 LAYING BEDDING (PARTIALLY PRECOMPACTED)

- General: Spread, in a loose uncompacted layer, approximately the required final thickness of bedding material and compact with a plate compactor. Spread a further layer approximately 15 mm thick, and screed to create loose surface for paving blocks.

## 666 LAYING BEDDING (POSTCOMPACTED)

- General: Spread bedding material in one loose uniform layer and screed to levels.

## 670 LAYING BLOCKS/ PAVERS/ SETTS

- General: Commence from an edge restraint. Vibrate to produce thoroughly interlocked paving of even overall appearance with regular joints and accurate to line, level and profile.
- Accuracy of surface: Class: I.
- Bedding of units: Firm, so that rocking or subsidence does not occur or develop.
- Working face: Lay blocks/ pavers/ setts hand tight. Maintain open non-castellated working face. Do not use mechanical force to obtain tight joints.
- Joint width: 2-5 mm.
- Placing: Squarely with minimum disturbance to bedding.
- Supply to laying face: Deliver over newly laid paving but stack at least 1 m back from laying face. Do not allow plant to traverse areas of uncompacted paving.
- Alignment: Continually check with string lines as work proceeds to ensure maintenance of accurate bond.
- Infill at edge restraints: Complete as work proceeds. Cut units accurately and maintain specified joint width. Avoid very small infill pieces at edges by breaking bond on the next course in from the edge, using cut blocks/ pavers/ setts not less than 1/3 full size.
- Cut edges: Turn inwards where possible; do not position against edge restraints or other features.
- In situ infill: Do not use.

## 676 OBSTRUCTIONS

- Cutting: After laying full paving units, trim blocks/ pavers/ setts neatly around drainage fittings and other obstructions. Cut units accurately and maintain joint width within specified range. Do not reduce thickness of blocks/ pavers/ setts.
- In situ concrete surrounds:

- Locations: Where blocks/ pavers cannot be fitted tight up.
- Standard: To SANS 2001-CC1 30 MPa air entrained concrete, maximum aggregate size 9.5 mm.
- Shape and size: Rectangular, 100 mm (minimum) all round obstruction.
- Thickness (minimum): Combined depth of blocks/ pavers/ setts and sand bedding.
- Colour: To approval.

## 678 CUTTING BLOCKS/ PAVERS/ SETTS

- General: Cleanly and accurately, without spalling.
- Do not mark or damage visible surfaces.
- Other requirements: As recommended by manufacturer.

## 680 COMPACTING AND JOINTING

- Timing:
  - After edge restraint/ kerb haunchings have matured.
  - As laying proceeds, but after infilling at edges. Do not leave uncompacted areas of paving at end of working periods.
- Compacting:
  - Standard: To BS 7533-3, Annex F, site category I and II.
  - General: Thoroughly compact blocks/ pavers/ setts with vibrating plate compactor to achieve specified bedding course thickness. Apply same compacting effort throughout. Do not damage kerbs and adjacent work.
  - Vibrating Plate Compactor for Concrete Block Paving. Plate area: 0.35 to 0.5 m<sup>2</sup>.  
Force range: 16-20kN/m<sup>2</sup>.  
Frequency range: 65 to 100Hz.
  - Neoprene sole plate: Use throughout.
- Areas not to be compacted:
  - Within 1 m of working face.
  - Within 1 m of unrestrained edges.
- Surface levels: Check frequently. Lift and relay areas not at specified level.
- Jointing: Where jointing material is specified, brush into joints, revibrate surface and repeat as necessary to completely fill joints.

## 682 COMPACTING CLAY PAVERS

- Timing: Brush sand into the joints and remove surplus before commencing any compaction.

## 684 COMPLETION OF PAVING WITH SAND FILLED JOINTS

- Sand dressing: Leave a thin layer of dry jointing sand over the paving.
- Vacuum cleaning machines: Not allowed.

## COMPLETION

### 920 MAINTENANCE MANUAL

- Incorporate details within the Building Manual to include:
  - Contact details for subcontractors and suppliers.
  - Product information for components and materials including manufacturers' literature.
  - A full set of construction drawings, updated to include any changes made up to the time of completion.
  - Method statement covering the procedures for replacement of paving units.
  - Recommendations for routine maintenance and cleaning.

## 16.3. Y40 Fencing/ Gates

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS. FENCING

### SYSTEMS

121 SECURITY FENCING ClearVu 22 or similar approved

- Manufacturer: Cochrane or similar approved
- Height: [2.7m].
- Posts: As manufacturers recommendations.
- Centres of posts (maximum): As manufacturers recommendations.
- Infill mesh: As manufacturers recommendations.
- Colour: Black
- Accessories: SHARK TOOTH SPIKE TOPPING

### GATES, POSTS AND STILES

#### 401 ACCESS GATES

- Manufacturer: Cochrane or similar approved.
- Product reference: ClearVu 22.
- Single Leaf: Swing
- Size: 2.7m high x 1.1m wide gate, 3mm dia Galvanized wire with aperture size (centers) 76.2mm x 12.7mm. Quantity: 2
- Size: 2.7m high x 3.6m wide gate, 3mm dia Galvanized wire with aperture size (centers) 76.2mm x 12.7mm. Quantity: 1
- Finish: Mesh Galvanized, then Marine Fusion Bond coated (acid modified) Colour: Black

#### 402 SLIDING GATE

- Manufacturer: Cochrane or similar approved.
- Product reference: ClearVu 22.
- Single Leaf: Sliding
- Size: 2.7m high x 5m wide gate, 3mm dia Galvanized wire with aperture size (centers) 76.2mm x 12.7mm. Quantity: 1
- Finish: Mesh Galvanized, then Marine Fusion Bond coated (acid modified) Colour: Black EXECUTION

#### 610 INSTALLATION GENERALLY

- Set out and erect:
- Alignment: Straight lines or smoothly flowing curves.
- Tops of posts: Following profile of the ground.
- Setting posts: Rigid, plumb and to specified depth, or greater where necessary to ensure adequate support.
- Fixings: All components securely fixed.

#### 670 SETTING POSTS IN CONCRETE

- Mix: Designated concrete not less than 15 Mpa.
- Alternative mix for small quantities: 50 kg Portland cement to 150 kg fine aggregate to 250 kg 20 mm nominal maximum size coarse aggregate, medium workability.
- Admixtures: Do not use.
- Holes: Excavate neatly and with vertical sides.
- Filling: Position post/ strut and fill hole with concrete to not less than the specified depth, well rammed as filling proceeds and consolidated.
- Backfilling of holes not completely filled with concrete: Excavated material, well rammed and consolidated.

## 674 SETTING POSTS IN EARTH

- Holes: Excavated neatly, with vertical sides and as small as practicable to allow refilling.
- Filling: Position posts/ struts and replace excavated material, well rammed as filling proceeds.

## 680 BOTTOM OF FENCING

- Secured by: As per manufacturer's recommendations.

## COMPLETION

### 910 CLEANING

- General: Leave the works in a clean, tidy condition.
- Surfaces: Clean immediately before handover.

### 912 FIXINGS

- All components: Tighten.
- Timing: Before handover.

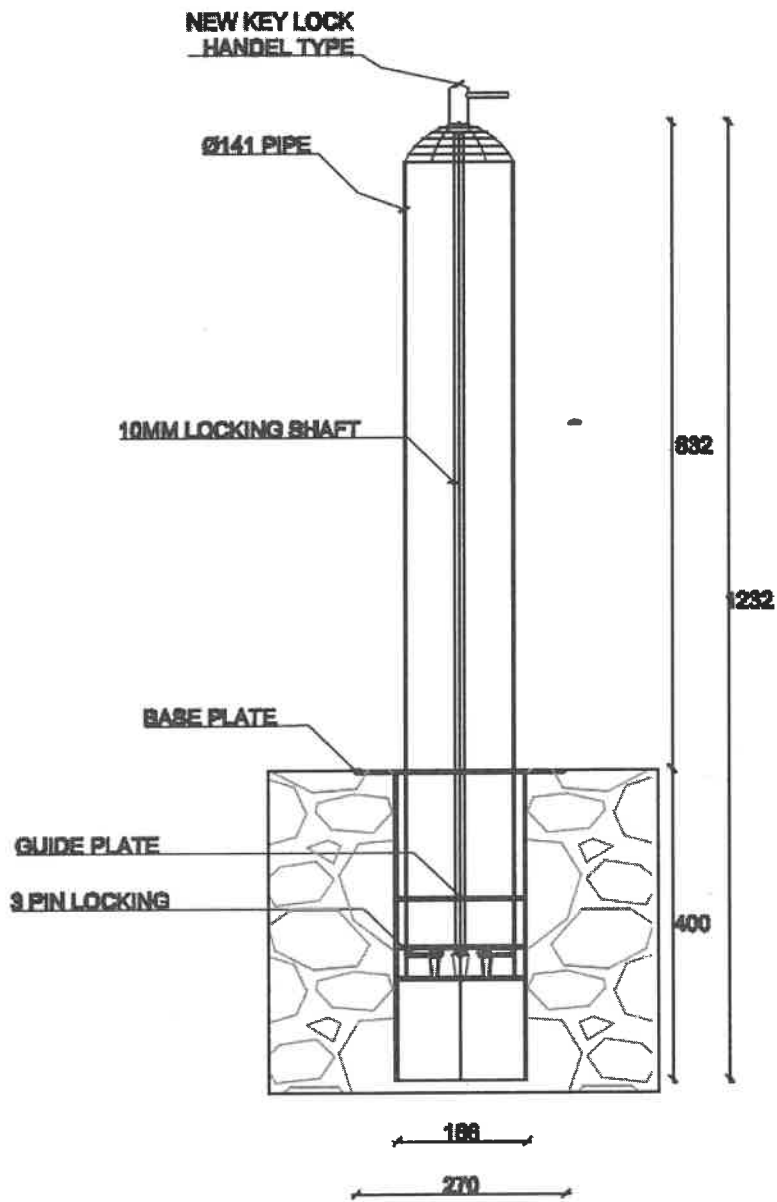
### 914 GATES

- Hinges, latches and closers: Adjust to provide smooth operation. Lubricate where necessary.
- Timing: Before handover.

### 920 MAINTENANCE MANUAL

- Incorporate details within the Building Manual to include:
  - Contact details for subcontractors and suppliers.
  - Product information for components and materials including manufacturers' literature.
  - A full set of construction drawings, updated to include any changes made up to the time of completion.

## 16.4. LOCKABLE, REMOVABLE, STAINLESS STEEL, BOLLARD ( BOOMGATE SYSTEMS OR EQUALLY APPROVED )



FOR POSITION AND QUANTITY OF BOLLARDS :

REFER TO ARCHITECTS DRAWING NO. 25495 / D13.027A / 2.105 – B



## 17. Z : BUILDING FABRIC REFERENCE SPECIFICATION

### 17.1. Z10 Purpose made joinery

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

#### FABRICATION 510

##### FABRICATION

- Sections: Accurate in profile and length, and free from twist and bowing. Formed out of solid unless shown otherwise.
- Machined surfaces: Smooth and free from tearing, wooliness, chip bruising and other machining defects.
- Joints: Tight and close fitting.
- Assembled components: Rigid. Free from distortion.
- Screws: Provide pilot holes.
- Screws of 8 gauge (4 mm diameter) or more and screws into hardwood: Provide clearance holes.
- Countersink screws: Heads sunk at least 2 mm below surfaces visible in completed work.
- Adhesives: Compatible with wood preservatives applied and end uses of timber.
- Fixings and fastenings not to protrude above the surface of boards or other finished work.
- Before fixing, seal off end grain of external components with primer and allow to dry.

#### 520 CROSS SECTION DIMENSIONS OF TIMBER

- General: Dimensions on drawings are finished sizes.
- Deviation from the stated sizes not permitted unless prior acceptance is given.

#### EXECUTION

#### 610 PRESERVATIVE TREATED WOOD

- Cutting and machining: Completed as far as possible before treatment.
- Extensively processed timber: Retreat timber sawn lengthways, thickened, planed, ploughed, etc.
- Surfaces exposed by minor cutting and/or drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

#### 620 MOISTURE CONTENT

- Wood and wood based products: Maintained within ranges specified for the component during manufacture and storage.

#### 630 LAMINATED PLASTICS VENEERED BOARDS/ PANELS

- Fabrication: To SANS 1763.
- Balancing veneer: From decorative veneer manufacturer and of similar composition. Applied to reverse side of core material.
- Finished components: Free from defects, including bow, twist, scratches, chipping, cracks, pimpling, indentations, glue marks, staining and variations in colour and pattern.
- Joints visible in completed work: Tight butted, true and flush.

#### 640 WOOD VENEERED BOARDS/ PANELS

- Core material and veneers: Conditioned before bonding.
  - Setting out: Veneer features and grain pattern aligned regularly and symmetrically unless instructed otherwise.
  - Balancing veneer: Applied to reverse side of core material.
  - Moisture and temperature movement characteristics: As facing veneer.
  - Veneer edges: Tight butted and flush, with no gaps.
  - Tolerance of veneer thickness (maximum):  $\pm 0.5$  mm.
- Finished components: Free from defects, including bow, twist, scratches, chipping, splits,

blebs, indentations, glue marks and staining.

- Surface finish: Fine, smooth, free from sanding marks.

## 650 FINISHING

- Surfaces: Smooth, even and suitable to receive finishes.
- Arrises: Eased unless shown otherwise on drawings.
- End grain in external components: Sealed with primer or sealer as section X10 and allowed to dry before assembly.

## 17.2. Z11 Purpose made metalwork

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

### PRODUCTS

#### 310 METAL PRODUCTS

- Standards: Generally, as specified in the following clauses.
- Fasteners: Generally, same metal as component, with matching coating and finish.

#### 320 STEEL LONG AND FLAT PRODUCTS

- Mechanical properties of steel: To SANS 1431.
- Hot rolled structural steels (excluding structural hollow sections and tubes): To SANS 50025-1.
- Fine grain steels, including special steels: To SANS 50025-3 and -4.
- Improved atmospheric corrosion resistance: To SANS 50025-5.

#### 330 STEEL PLATE, SHEET AND STRIP

- Mechanical properties of steel: To SANS 1431.
- Plates and wide flats, high yield strength steel: To SANS 50025-6.

#### 340 HOT ROLLED STEEL PLATE, SHEET AND STRIP

- Flat products, high yield strength for cold forming: To BS EN 10149-1, -2 and -3.
- Low carbon steel sheet and strip for cold forming: To SANS 3574.
- Narrow strip, formable and general engineering purposes: To BS 1449-1.8 and BS 1449-1.14.

#### 350 COLD ROLLED STEEL PLATE, SHEET AND STRIP

- Steel sections: To BS EN 10162.
- Flat products, high yield strength micro-alloyed steels for cold forming: To BS EN 10268.
- Low carbon steel flat products for cold forming: To SANS 3574, BS EN 10130 and BS EN 10131.
- Uncoated mild steel narrow strip for cold forming: To BS EN 10139 and BS EN 10140.
- Narrow strip, general engineering purposes: To BS EN 10132-1, -2, and -3.
- Low carbon steel flat products for vitreous enamelling: To BS EN 10209.

#### 360 STEEL COATED FLAT PRODUCTS

- Hot dip zinc coated low carbon steel sheet and strip for cold forming: To SANS 3575.
- Hot dip zinc coated structural steel sheet and strip: To SANS 4998.
- Hot dip zinc-aluminium (za) coated sheet and strip: To SANS 14788.
- Hot dip aluminium-zinc (az) coated sheet and strip: To SANS 9364.
- Organic coated flat products: To BS EN 10169-1.

#### 370 STEEL STRUCTURAL HOLLOW SECTIONS (SHS)

- Hollow sections for structural and general engineering: To SANS 657-1.

## 380 OTHER STEEL SECTIONS

- Equal flange tees: To BS EN 10055.
- Equal and unequal angles: To BS EN 10056-1 and -2.
- Wire, mild steel for general engineering purposes: To BS 1052.
- Wire and wire products, general: To BS EN 10218-2.
- Tubes:
  - Seamless and welded tubes: To SANS 657-1.
  - Round, oval, square and rectangular sections for furniture: To SANS 657-4.
  - Light gauge welded steel pipes: To SANS 1182.

## 400 STAINLESS STEEL PRODUCTS

- Chemical composition and physical properties: To BS EN 10088-1.
- Sheet, strip and plate: To BS EN 10088-2.
- Semi-finished products bars, rods and sections: To BS EN 10088-3.
- Wire: To BS EN 10088-3.
- Tubes:
  - Seamless circular: To BS EN 10297-2.
  - Welded austenitic stainless steel tubes: To SANS 965.

## 410 ALUMINIUM ALLOY PRODUCTS

- Designations:
  - Designation system, chemical composition and forms: To SANS 51780-1 to 3.
  - Sheet, strip and plate: To BS EN 485-1 to-4.
  - Cold drawn rods, bars and tubes: To BS EN 754-1 and -2.
  - Extruded rods, bars, tubes and profiles: To SANS 50755-2 and -7.
  - Drawn wire: To BS EN 1301-1, -2 and -3.
- Rivet, bolt and screw stock: To BS 1473.
- Structural sections: To BS 1161.

## 420 COPPER ALLOY PRODUCTS

- Sheet, strip, plate and circles for general purposes: To BS EN 1652
- Sheet and strip for building purposes: To BS EN 1172.
- Rods: To BS EN 12163.
- Profiles and rectangular bars: To BS EN 12167.
- Wire: To BS EN 12166.
- Tubes: To BS EN 12449.

## FABRICATION

### 510 PREPARATION FOR APPLICATION OF COATINGS

- General: Complete fabrication, and drill fixing holes before applying coatings.
- Paint, grease, flux, rust, burrs and sharp arrises: Remove.

### 515 FABRICATION GENERALLY

- Contact between dissimilar metals in components: Avoid.
- Finished components: Rigid and free from distortion, cracks, burrs and sharp arrises.
- Moving parts: Free moving without binding.
- Corner junctions of identical sections: Mitre.
- Prefinished metals: Do not damage or alter appearance of finish.

### 520 COLD FORMED WORK

- Profiles: Accurate, with straight arrises.

### 525 ADHESIVE BONDING

- Preparation of surfaces of metals to receive adhesives:
  - Degrease.
  - Abrade mechanically or chemically etch.
  - Prime: To suit adhesive.

- Adhesive bond: Form under pressure.

## 530 THERMAL CUTTING OF STAINLESS STEEL

- Carbonation in the heat affected zone: Remove, after cutting.

## 535 WELDING AND BRAZING GENERALLY

- Surfaces to be joined: Clean thoroughly.
- Tack welds: Use only for temporary attachment.
- Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
- Surfaces of materials that will be self-finished and visible in completed work: Protect from weld spatter.
- Flux residue, slag and weld spatter: Remove.

## 540 WELDING OF STEEL

- Method: Metal arc welding to BS EN 1011-1 and -2.
- Joint preparation: To SANS 9692-1.
- Testing: To AWS D1.1.

## 545 WELDING OF STAINLESS STEEL

- Method: Metal arc welding to BS EN 1011-1 and -2.
- Joint preparation: To SANS 9692-1.
- Butt welds: Double bevel.

## 550 WELDING OF ALUMINIUM ALLOYS

- Method: TIG or MIG welding to BS EN 1011-4.
- Joint preparation: To SANS 9692-3.

## 555 BRAZING

- Standard: To BS EN 14324.

## 565 FINISHING WELDED AND BRAZED JOINTS VISIBLE IN COMPLETE WORK

- Butt joints: Smooth, and flush with adjacent surfaces.
- Fillet joints: Neat.
- Grinding: Grind smooth where indicated on drawings.

## 17.3. Z15 Holes and chases

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

### EXECUTION

#### 610 COORDINATION

- Locations and dimensions of holes and chases for services: Submit details in visible areas within the Existing Court Building for inspection by Architect prior to execution. Allow two weeks for provision of alternative locations and dimensions..

#### 620 HOLES AND CHASES IN IN SITU CONCRETE

- Cast in: Holes larger than 10 mm diameter and chases.
- Cutting and drilling:
  - Permitted for holes not larger than 10 mm diameter.
  - Not permitted for holes larger than 10 mm diameter except as indicated on drawings.

#### 630 HOLES AND CHASES IN PRECAST CONCRETE

- Cutting and drilling: Not permitted except as indicated on drawings.

## 640 HOLES IN STRUCTURAL STEELWORK

- Cutting and drilling: Not permitted except as indicated on drawings.

## 650 HOLES, RECESSES AND CHASES IN MASONRY

- Locations: To maintain integrity of strength, stability and sound resistance of construction.
- Sizes: Minimum needed to accommodate services.
- Holes (maximum): 300 x 300 mm.
- Walls of hollow or cellular blocks: Do not chase.
- Walls of other materials:
  - Vertical chases: No deeper than one third of single leaf thickness, excluding finishes.
  - Horizontal or raking chases: No longer than 1 m. No deeper than one sixth of the single leaf thickness, excluding finishes.
- Chases and recesses: Do not set back to back. Offset by a clear distance at least equal to the wall thickness.
- Cutting: Do not cut until mortar is fully set. Cut carefully and neatly. Avoid spalling, cracking and other damage to surrounding structure.

## 660 PREFORMED HOLES IN MASONRY

- Width of holes without bridging over (maximum): 300 mm.
- Holes requiring bridging: Submit proposals.

## 670 NOTCHES AND HOLES IN STRUCTURAL TIMBER

- General: Avoid if possible.
- Sizes: Minimum needed to accommodate services.
- Position: Do not locate near knots or other defects.
- Notches and holes in same joist: Minimum 100 mm apart horizontally.
- Notches in joists: Locate at top. Form by sawing down to a drilled hole.
- Depth (maximum): 0.125 x joist depth.
- Distance from supports: Between 0.07 and 0.25 x span.
- Holes in joists: Locate on neutral axis.
- Diameter (maximum): 0.25 x joist depth.
- Centres (minimum): 3 x diameter of largest hole.
- Distance from supports: Between 0.25 and 0.4 of span.
- Notches in roof rafters, struts and truss members: Not permitted.
- Holes in struts and columns: Locate on neutral axis.
- Diameter (maximum): 0.25 x minimum width of member.
- Centres (minimum): 3 x diameter of largest hole.
- Distance from ends: Between 0.25 and 0.4 of span.

## 690 INSTALLING PIPE SLEEVES

- Sleeves: Fit to pipes passing through building fabric.
- Material: Match pipeline.
- Size: One or two sizes larger than pipe to allow clearance.
- Finish: Install sleeves flush with building finish. In areas where floors are washed down, install protruding 100 mm above floor finish.
- Masking plates: Fit at visible penetrations, including through false ceilings of occupied rooms.

## 17.4. Z20 Fixings and adhesives

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

### PRODUCTS

#### 310 FASTENERS GENERALLY

- Materials: To have:
  - Bimetallic corrosion resistance appropriate to items being fixed.
  - Atmospheric corrosion resistance appropriate to fixing location.

- Appearance: Submit samples on request.

## 320 PACKINGS

- Materials: Non-compressible, corrosion proof.
- Area of packings: Sufficient to transfer loads.

## 330 NAILED TIMBER FASTENERS

- Nails:
  - Steel: To SANS 820 or EN 10230-1.

## 340 MASONRY FIXINGS

- Light duty: Plugs and screws.
- Heavy duty: Expansion anchors or chemical anchors.

## 350 PLUGS

- Type: Proprietary types to suit substrate, loads to be supported and conditions expected in use.

## 360 ANCHORS

- Types:
  - Expansion: For use in substrate strong enough to resist forces generated by expansion of anchor.
  - Adhesive or chemical:  
For use in substrate where expansion of anchor would fracture substrate.  
For use in irregular substrate where expansion anchors cannot transfer load on anchor.
  - Cavity: For use where the anchor is retained by toggles of the plug locking onto the inside face of the cavity.

## 370 WOOD SCREWS

- Type:
  - Woodscrews (traditional pattern).  
Standard: To SANS 1171.
  - Wood screws.  
Pattern: Parallel, fully threaded shank or twin thread types.
- Washers and screw cups: Where required are to be of same material as screw.

## 380 MISCELLANEOUS SCREWS

- Type: To suit the fixing requirement of the components and substrate.
- Pattern: Self-tapping, metallic drive screws, or power driven screws.
- Washers and screw cups: Where required to be of same material as screw.

## 390 ADHESIVES GENERALLY

- Standards:
  - Hot-setting phenolic and aminoplastic: To SANS 1349.
  - Thermosetting wood adhesives: To EN 12765.
  - Polyvinyl acetate thermoplastic adhesive: To SANS 13484071.

## 410 POWDER ACTUATED FIXING SYSTEMS

- Types of fastener, accessories and consumables: As recommended by tool manufacturer.

## EXECUTION

### 610 FIXING GENERALLY

- Integrity of supported components: Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.
- Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers/ sleeves to avoid bimetallic corrosion.

- Appearance: Fixings to be in straight lines at regular centres.

## 620 FIXING THROUGH FINISHES

- Penetration of fasteners and plugs into substrate: To achieve a secure fixing.

## 630 FIXING PACKINGS

- Function: To take up tolerances and prevent distortion of materials and components.
- Limits: Do not use packings beyond thicknesses recommended by fixings and fasteners manufacturer.
- Locations: Not within zones to be filled with sealant.

## 640 FIXING CRAMPS

- Cramp positions: Maximum 150 mm from each end of frame sections and at 600 mm maximum centres.
- Fasteners: Fix cramps to frames with screws of same material as cramps.
- Fixings in masonry work: Fully bed in mortar.

## 650 NAILED TIMBER FIXING

- Penetration: Drive fully in without splitting or crushing timber.
- Surfaces visible in completed work: Punch nail heads below wrot surfaces.
- Nailed timber joints: Two nails per joint (minimum), opposed skew driven.

## 660 SCREW FIXING

- Finished level of countersunk screwheads:
  - Exposed: Flush with timber surface.
  - Concealed (holes filled or stopped): Sink minimum 2 mm below surface.

## 670 PELLETTED COUNTERSUNK SCREW FIXING

- Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
- Pellets: Cut from matching timber, match grain and glue in to full depth of hole.
- Finished level of pellets: Flush with surface.

## 680 PLUGGED COUNTERSUNK SCREW FIXING

- Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
- Plugs: Glue in to full depth of hole.
- Finished level of plugs: Projecting above surface.

## 690 USING POWDER ACTUATED FIXING SYSTEMS

- Operatives: Trained and certified as competent by tool manufacturer.

## 700 APPLYING ADHESIVES

- Surfaces: Clean. Adjust regularity and texture to suit bonding and gap filling characteristics of adhesive.
- Support and clamping during setting: Provide as necessary. Do not mark surfaces of or distort components being fixed.
- Finished adhesive joints: Fully bonded. Free of surplus adhesive.

## 17.5. Z21 Mortars

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

### CEMENT GAUGED MORTARS

#### 310 CEMENT GAUGED MORTAR MIXES

- Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

## 320 SAND FOR SITE MADE CEMENT GAUGED MASONRY MORTARS

- Standard: To SANS 1090.
- Grading: To table 1.
- Fines content where the proportion of sand in a mortar mix is specified as a range (e.g. 1:1: 5-6):
- Lower proportion of sand: Use category 3 fines.
- Higher proportion of sand: Use category 2 fines.
- Sand for facework mortar: Maintain consistent colour and texture. Obtain from one source.

## 330 CEMENTS FOR MORTARS

- Cement: To SANS 50197-1.
- Types: Portland cement, CEM I.  
Portland limestone cement, CEM II/A-L or CEM II/A-LL.  
Portland slag cement, CEM II/B-S.  
Portland fly ash cement, CEM II/B-V.
- Strength class: 32.5, 42.5 or 52.5.
- White cement: To SANS 50197-1.
- Type: Portland cement, CEM I.
- Strength class: 52.5.
- Sulfate resisting Portland cement:
- Types:  
- To SANS 50197-1 fly ash cement, CEM II/B-V.
- Strength class: 32.5, 42.5 or 52.5.
- Masonry cement: To SANS 50413-1.
- Class: 12.5.

## 335 ADMIXTURES FOR SITE MADE CEMENT GAUGED MORTARS

- Air entraining (plasticizing) admixtures: To EN 934-3 and compatible with other mortar constituents.
- Other admixtures: CEMCRETE BLACK TINT
- Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

## 350 RETARDED READY TO USE CEMENT GAUGED MORTAR

- Lime for cement:lime:sand mortars: Hydrated lime to SANS 523.
- Pigments for coloured mortars: To EN 12878.
- Time and temperature limitations: Use within limits prescribed by mortar manufacturer.
- Retempering: Restore workability with water only within prescribed time limits.

## EXECUTION

### 605 STORAGE OF CEMENT GAUGED MORTAR MATERIALS

- Sands and aggregates: Keep different types/grades in separate stockpiles on hard, clean, free-draining bases.
- Factory made ready-mixed lime: sand/ ready to use retarded mortars: Keep in covered containers to prevent drying out or wetting.
- Bagged cement/ hydrated lime: Store off the ground in dry conditions.

### 610 MAKING CEMENT GAUGED MORTARS

- Batching: By volume. Use clean and accurate gauge boxes or buckets.
- Mix proportions: Based on dry sand. Allow for bulking of damp sand.
- Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
- Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.
- Working time (maximum): Two hours at normal temperatures.
- Contamination: Prevent intermixing with other materials.



## 17.6. Z22 Sealants

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

### SYSTEM TYPES

#### 110 SEALANT FILLED JOINTS Generally

- Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.

### EXECUTION

#### 610 SUITABILITY OF JOINTS

- Presealing checks:
  - Joint dimensions: Within limits specified for the sealant.
  - Substrate quality: Surfaces regular, undamaged and stable.
  - Joints not fit to receive sealant: Submit proposals for rectification.

#### 620 PREPARING JOINTS

- Surfaces to which sealant must adhere:
  - Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.
  - Clean using materials and methods recommended by sealant manufacturer.
  - Vulnerable surfaces adjacent to joints: Mask to prevent staining or smearing with primer or sealant.
  - Backing strip and/or bond breaker installation: Insert into joint to correct depth, without stretching or twisting, leaving no gaps.
  - Protection: Keep joints clean and protect from damage until sealant is applied.

#### 625 JOINT FILLER

- Jointfillers, when placed in the joint, to provide a gap consistent with the required depth of sealant.

#### 630 APPLYING SEALANTS

- Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice or snow.
- Environmental conditions: Do not dry or raise temperature of joints by heating.
- Carefully prepare surfaces to receive sealant, using correct de-greasing solvents, primers and bonding agents as necessary.
- The application of sealant to be in accordance with the supplier's/manufacturer's written preparatory and application procedures and the Code of Practice prepared by the British Adhesives and Sealant Association Manual of Good Practice, or acceptable equivalent organisation.
- Sealant application: Fill joints completely and neatly, ensuring firm adhesion to substrates.
- Sealant to be evenly applied without bubbles in joints.
- The cross section of sealant in the joint to be of 2:1 width to depth unless otherwise accepted.
- Sealant profiles:
  - Butt and lap joints: Slightly concave.
  - Fillet joints: Flat or slightly convex.
- Remove excess sealant and ensure joints are neat and clean.
- Only liquids approved by the sealant manufacturer to be used to tool freshly applied sealant.
- Protection: Protect finished joints from contamination or damage until sealant has cured.

## 17.7. Z31 Powder coatings

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

### PERFORMANCE

#### 210 WORKING PROCEDURES

- Requirement: Comply with:
  - SANS 1796 and BS 6496 for aluminium alloy backgrounds.
  - BS EN 13438 for galvanized steel and sherardized backgrounds.
  - British Coatings Federation: Code of safe practice - Application of thermosetting powder coatings by electrostatic spraying.
  - Powder coating manufacturer's guarantee.

#### 215 POWDER COATING APPLICATORS

- Applicator requirements:
  - Approved by powder coating manufacturer.
  - Currently certified to SANS 9001.
  - Comply with quality procedures, guarantee conditions, standards and tests required by powder coating manufacturer.
  - Each applicator to use only one plant.
- Selected applicator: Submit details before commencement of powder coating.

#### 220 SPREAD OF FLAME TEST

- Requirement of powder coating: Class 1 when tested to SANS 10177.

#### 225 PERFORMANCE AND APPEARANCE OF POWDER COATINGS

- Standard: To SANS 1274, SANS 1796, BS 6496 and BS EN 13438.

#### 230 CERTIFICATES

- AFSA Certificate of Conformance:
  - Covering:  
Powder conforms to SANS 1578.  
Coating conforms to SANS 1796.
- Certificate from Powder Coating Manufacturer:
  - Covering:  
Compliance with manufacturer's recommended Quality Assurance programme.
- Submit signed project specific copies on completion of work.

#### 235 GUARANTEES

- Powder coating manufacturer and applicator guarantees:
  - Submit sample copies before commencement of powder coating.
  - Submit signed project specific copies on completion of work.

#### 240 COMPONENT DESIGN

- Condition of components to be powder coated:
  - To comply with relevant recommendations of BS 4479-1, -3, and -4.
  - Of suitable size to fit plant capacity.
  - Of suitable thickness to withstand oven curing.

### MATERIALS

#### 310 POWDER COATING MATERIALS

- Standard: SANS 1578, BS 6496, BS EN 13438 and BS EN 12206.
- Manufacturer: Obtain from one only of the following: Submit proposal.
- Selected manufacturer: Submit details before commencement of powder coating.
- Powder Coating Class: Class 2

## EXECUTION

### 610 CONTROL SAMPLES

- Sequence: Prior to ordering materials for the works, obtain approval of appearance for:
  - Powder coated samples: Of various grades and forms of background metal to be used, showing any colour, texture and gloss variation.
  - Fabrication samples: Showing joint assembly, how powder coating is affected and how any cut metal edges are protected.
- Samples to include the following information:
  - Product reference.
  - Colour:
  - Reference number.
  - Name.
  - Gloss level.

### 620 PRETREATMENT

- Condition of components to be powder coated:
  - Free from corrosion and damage.
  - Free from impurities including soil, grease, oil.
  - Suitable for and compatible with the pretreatment and powder coating process.
- Process: Clean, conversion coat, condition, rinse in demineralised water, drain and dry components in accordance with the powder coating manufacturer's requirements and the pretreatment supplier's recommendations.

### 630 EXTENT OF POWDER COATINGS

- Application: To visible component surfaces, and concealed surfaces requiring protection. Coated surfaces will be deemed 'significant surfaces' for relevant performance requirements.

### 635 APPLICATION OF POWDER COATINGS

- Surfaces to receive powder coatings: Free from dust or powder deposits.
- Completion of powder coatings: Within 48 hours of pre-treatment of components.
- Jig points: Not visible on coated components.
- Curing: Controlled to attain metal temperatures and hold periods recommended by powder coating manufacturer.
- Stripping and recoating of components: Only acceptable by prior agreement of powder coating manufacturer. Stripping, pretreatment and powder coating are to be in accordance with manufacturer's requirements.
- Overcoating of components: Not acceptable.

### 640 PERFORMANCE AND APPEARANCE OF POWDER COATINGS

- Standards: To SANS 2813/ISO 2813, SANS 3668/ISO 3668 and BS EN 13438.

### 650 ALUMINIUM ALLOY FABRICATIONS

- Units may be assembled:
  - Before powder coating.
  - From components powder coated after cutting to size.
  - Where approved, from components powder coated before cutting to size.
- Exposure of uncoated background metal: Not acceptable.
- Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

### 655 STEEL FABRICATIONS

- Unit assembly: Wherever practical, before powder coating.
- Exposure of uncoated background metal: Not acceptable.
- Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

**660 FIXINGS** Exposed metal fixings: Powder coat together with components, or coat with matching repair paint system applied in accordance with the powder coating manufacturer's recommendations.

## **670 FABRICATION DAMAGE REPAIR/ REPLACEMENT**

- Inspection: Check all components before delivery to site for damage to powder coatings. Submit proposals for repair or replacement.

## **675 PROTECTION**

- Powder coated surfaces of components: Protect from damage during handling and installation, or by subsequent site operations.
- Protective coverings: Must be:
  - Resistant to weather conditions.
  - Partially removable to suit building in and access to fixing points.
- Protective tapes in contact with powder coatings: Must be:
  - Low tack, self adhesive and light in colour.
  - Applied and removed in accordance with tape and powder coating manufacturers' recommendations. Do not use solvents to remove residues as these are detrimental to the coating.
- Inspection of protection: Carry out monthly. Promptly repair any deterioration or deficiency.

## **685 SITE DAMAGE REPAIR/ REPLACEMENT**

- Damage to powder coatings: Rectify immediately damage caused during handling and installation, or by subsequent site operations. Submit proposals for extensive repair or replacement.

## **COMPLETION**

### **810 DOCUMENTATION**

- Submit the following information for each batch of powder coated components:
  - Supplier.
  - Trade name.
  - Colour.
  - Type of powder.
  - Method of application.
  - Batch and reference number.
  - Statutory requirements.

### **820 COMPLETION**

- Cleaning and maintenance of powder coatings: Carry out in accordance with procedures detailed in powder coating manufacturer and applicator guarantees.