

## 1. TECHNICAL SPECIFICATIONS:

### 1.1 Description of offering

Engineered certified system consisting of a pre-painted steel panel filled with 40mm polyurethane foam.

This is our site erect system, it is a panelised system erected on a concrete foundation. It is quick and easy to erect and can be configured to almost any layout required. We have used this system in many types of applications from 12,000m<sup>2</sup> accommodation camps to a 2m<sup>2</sup> Guard Room, single story or double story. The designs have been reviewed by our structural engineers and we can confirm that that an appropriate certification will be issued on this system.

### 1.2 Foundations where applicable

*These items are to be provided by the Client or a third party*

- Existing excavated and/or backfilled sub-base
- Ground level to be compacted to 95% Modified AASHTO density with a minimum CBR of 25%. The sub-base is to be uniformly compacted to avoid relatively harder and softer spots and must settle evenly over its entire area;
- Minimum modulus of sub-grade reaction:  $k=40\text{KPa/mm}$
- Soil bearing Capacity: 200 to 250KPa

### 1.3 Concrete surface bed where applicable

*These items are to be provided by the Client or a third party*

- Concrete strength to be 25MPa at 28 days including reinforcement with a minimum cover of 50mm;
- Damp proof membrane below surface bed to be 250 micron with minimum 100mm overlaps and membrane to be turned up at the edge of the surface bed;
- The top of the concrete to be finished with a power float or similar tool to achieve a smooth and even finish as required by SABS 1200G;
- The surface bed is to be constructed to minimum tolerances as required by SABS1200G - Degree of Accuracy;
- The design of the surface bed must incorporate suitable joints to accommodate soil, surface bed and building movement;
- The supply and construction of the plumbing piping in the concrete slabs to be provided by the client or a third party;

### 1.4 Floors

*Covering*

Vinyl Sheeting;

- 2mm beige - sandalwood;
- Slip Resistance – EN 13893 Class DS;
- Reaction to fire – EN 13501-1 Class Bfl-S1; ASTM E662 <450 (1.5,2.0mm); ASTM E648 class 1 (1.5,2.0mm)
- Abrasion resistance – EN660-2 Group M;
- Indentation Residua – ASTM F970 (modified), static load 750psi;
- Electrical Behaviour (Body Voltage) – EN 1815 s2kV, classified as ‘antistatic’;

*Supported by*

- Concrete slabs provided by others

## 1.5 Internal and External Walls

### *Base Rails – Concrete Floors*

- 185mm girth for concrete;
- Galvanised pre-painted;
- External walls - 1.6mm Thick x 185mm girth galvanised Z-section base rail including mastic damp proof seal between concrete foundation and base rail; Internal walls – 1.6mm Thick x 60mm girth with angle bottom rail;

### *Top Rails*

- External wall panels supported and joined at top with 30 x 46 x 100mm U-channel, 1.6mm Z275 Galvanised sheeting fixed to wall panel with aluminium rivets;
- Powder Coated;

### *Pre-painted galvanised sheets*

- Z275 hot dipped galvanised sheets – 0.5mm nominal thickness;
- Inside facing section of sheets finished with single backing coat – 8 microns dry film thickness;

### *Panels*

- Our Polyurethane panels are manufactured in a 40mm thickness only.
- Polyurethane has greater insulation properties compared to Polystyrene and our panel properties compared to a 75mm Polystyrene are very similar.

### *Wall Panels*

- 40mm thick panel comprising two 0.5mm rigidised pre-painted galvanized (chromadek) sheets;
- Chromadek is rigidised to provide extra strength.
- Standard panel sizes, 1160mm wide x 2700 high;
- Providing a floor to ceiling height of +/- 2.6m;
- Insulation properties, 0.022W/mK;
- Foam density, 36kg/m<sup>3</sup>;
- Each blank panel is injected with high density polyurethane covered with a temporary protective film;
- Thermal break provided on both male and female sides,
- Panel R value = 1.81
- Panels have a vertical load bearing capacity of 1.1 tons in the centre and 2 tons on the seam between two panels
- Acoustic properties of 32db drop through panel

### *Environmental (Wall Panels)*

- The product conforms 100% to the requirements of the Montreal protocol and contains no products harmful to the Ozone layer.

### *Fire Properties (Wall Panels)*

- The panel conforms to a DIN 4102 82 fire rating

### *Energy Performance (Wall Panels)*

- The building regulations for England and Wales now ensure that standards of thermal insulation in ALL buildings are at least as good as those which became mandatory for dwellings in 1976. Energy conservation is now an important factor in the statutory control of building designs.

Building Type	Maximum U-value (W/m <sup>2</sup> K) of Building Elements	
	Building Element	
	Wall	Roof
Dwelling	0.6	0.35
Storage	0.7	0.7
Others	0.6	0.6

The excellence of polyurethane (PUR) and polyisocyanate (PIR) rigid foams as insulants is well documented, with ad-value of 0.022 W/mk, less PUR or PIR is needed to provide the same degree of insulation as other commonly used insulants.

Values of thermal resistance of standard thicknesses of polyurethane foam (k = 0.022 W/mk) (Excluding facings and surfaces.)

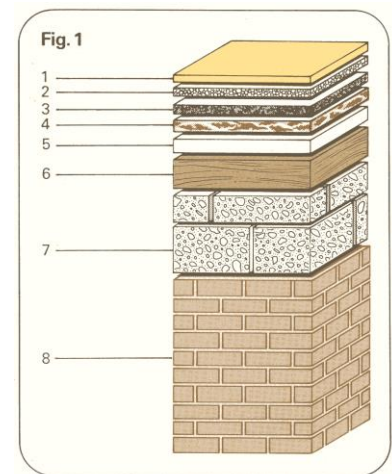
*U-Value*

- Thickness 40mm
- Resistance to thermal Transmission (m<sup>2</sup>KW)1.82

*Comparison's*

- Figure 1 shows the equivalent thickness of common building and insulation materials required to achieve the same degree of insulation (dry condition)

1. 25mm Polyurethane
2. 40mm Polystyrene
3. 45mm mineral wool
4. 50mm cork
5. 65mm fibreboard
6. 140mm softwood
7. 380mm concrete blocks
8. 860mm common bricks



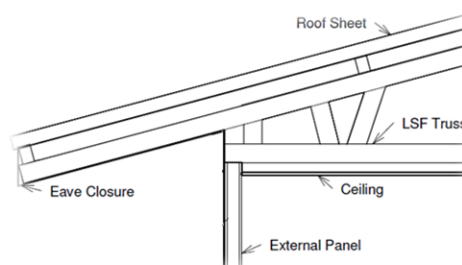
*Cappings & Skirting*

- All trims manufactured from 0.5mm Pre-painted galvanised sheets;
- 7mm x 45mm white PVC skirting secured to panels;

**1.6 Roof and Ceiling**

*Light Steel Frame Roofs*

- Roof is designed to a 11° pitch with 300mm overhangs on the eave and 0mm on the gable ends.
- Z275,0.5mm pre-painted galvanised roof sheet covering;
- Single over lapped roof sheets;



#### *Ceilings for LSF Roofs*

- 6mm nailed up pvc ceilings;
- Minimum floor to ceiling height 2.400mm high as indicated on floor layouts;
- Insulated with 100mm Aerolite insulation;

### **1.7 Electrical**

#### *Wiring & Distribution Boards*

- Wiring is in accordance with SANS 10142-1: 2008 - 220 volts;
- Distribution boards are 1x20 Way and/or 3 x 15 Way Surface Din Distribution Boards (Where applicable);

#### *Light fittings*

- Ceiling mounted 4 ft single or double open channel V-Shape 1.2 metre florescent lights;
- Ceiling mounted bowl fittings JD 90 Lights or equivalent in bathrooms;
- External bulkheads IP44 circular 16w 2D external round bulkhead with porcelain KO or equivalent;

#### *Plug sockets*

- Single or double south-african plug sockets ; Lear or equivalent (16 Amp), 4x4 single or 4x4 double;

#### *Light Switches, Isolators & Circuit Breakers*

- Lear 10AMP or equivalent switches;
- Lear 20AMP or equivalent isolators;
- Onesto circuit breakers or equivalent for Din Rail Boards;
- 10-63 Amp S/p circuit breakers & 63 Amp non-overload protected earth-leakage;

### **1.8 Plumbing & Sanitary Wear (If applicable)**

#### *Potable water supply*

- JG Speed Fit white polyethylene pipe certified in accordance to SANS 15875;
- 15mm and or 22mm;
- PEM twist and lock range of fittings or equivalent;
- Plumbing system pressure tested to 10 bar;

#### *Geysers (hot water heaters)*

- Franke/Kwikot combi slim electric geysers or similar;
- Certified in accordance with IPX4 International standards;
- ISO 9001 and SABS SANS 151 Approved;
- Capacities are indicated on the floor plans;

#### *Toilets*

- Ceramic close couple cistern or equivalent;
- Cistern - SABS Certified Mark No: 1182/2512 SANS 821
- Capacity 9 litres with left or right side inlet flush handle;
- Afsan low level pan or equivalent;
- Toilet seat - B2 seat and cover

#### *Basins*

- White porcelain, Amber wash hand basin with pedestal;

#### *Taps*

- Cobra Pillar taps;
- In accordance with SANS 226 Type 2;

#### *Waste water pipes*

- 110mm white PVC or equivalent - black water;
- 50mm white PVC or equivalent - grey water;

### **1.9 Windows**

- Natural anodised 25 micron aluminium frame;
- Top hung frames fitted with 4mm clear float glass for all windows except in toilets and ablutions where obscure float glass is used;
- Standard sizes throughout 900mm x 900mm and 600mm x 600mm (Obscure);
- Burglar proofing over all opening windows;
- Blinds and Flyscreens (provided as an optional when required)

### **1.10 Doors**

#### *External & Internal*

- 40mm thick door panel cut from standard Kwikspace PU wall panel;
- Standard size of 2032mm x 813mm;
- Each door framed with 0.5mm pre-painted galvanised capping riveted to door panel;
- Natural anodised aluminium rebated door frame including rubber buffers and heavy duty aluminium hinges;
- Pre-painted galvanised drip rail to doors opening outwards;
- External locks are five lever Dorma locks complete with stainless steel striker plate and two keys; Chrome plated handles or Equivalent;

### **1.11 Fittings (Where and/or if applicable)**

#### *Mirrors*

- 3mm silvered float copper backed glass with exposed chromium plated corner brackets fixed to panels; standard sizes - 300 x 300mm high

#### *Air conditioners*

- Samsung split type / window wall air conditioners or equivalent as per the sizes and type indicated on the floor plans;

#### *Extractor fans*

- Expelair GX6 wall mounted extractor fans suitable for 220 240 volt (50Hz) single phase installation

### **1.12 Optional Extra's**

- Furniture Fittings and Equipment;
- Blinds for windows
- Flyscreens for windows
- Gutters and Downpipes
- Verandah's or door canopies
- Door Closures
- Steps & Handrails
- Fire Extinguishers and smoke detectors