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# Chapter 7

## *Design development*

### 7.1 Precedent studies

As part of the design development various kiosk and small buildings, bus stops etc. had been critiqued. The evaluation was undergone on the basis of pro's and con's of aesthetic, function, philosophy, practicality, security, suitability to environment and approach to space, as and if it applies to each precedent. Not all of the precedents yielded useful responses in each of the categories. The most salient critiques and observations are represented in the next few pages.

# Precedents // kiosks & small buildings



## Description

### Temporary Buckingham Palace ticket kiosk, London

**Michael Hopkins & Partners, 1994**

Kiosk for tickets to Buckingham Palace in August and September.

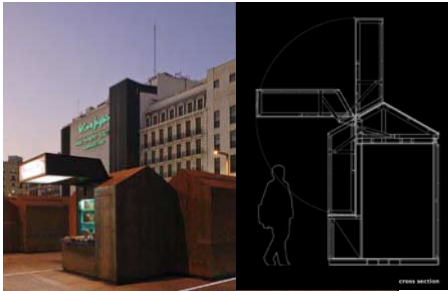
Demountable, storable structure that could be used for 5 years.

Prefabricated timber cabin in two parts on wheels with timber deck on adjustable feet.

Tensile fabric canopy supported by timber beams bolted together and attached to cabin with steel plates.

Vertical tensile cables tied to concrete blocks in the ground.

[Hardingham 2002:76]



### Kiosk M. Poli, Madrid,

**Brut Deluxe, 2006**

Based on the Monopoly board game house tokens.

For temporary street markets.

Creates a temporary mini streetscape.

When closed the kiosk has an archetypal house shape. This perception is heightened when the kiosk is opened fully, forming an oversized chimney.

The opening section can be backlit for advertisement, lighting or just attracting attention.

[Architectural Review 2008:sp]



### Paperhouse newspaper kiosk, Kensington & Chelsea, London,

**Heatherwick Studios, 2009**

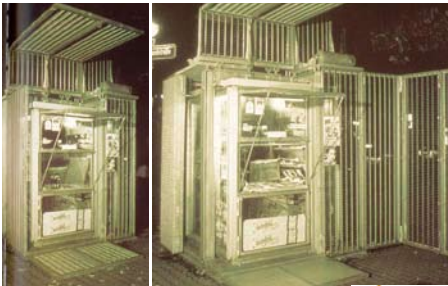
No flat surfaces inviting graffiti.

Allows vendors easier opening and setting up.

Kiosks open by rotating front panels which also allow for more ergonomic magazine display areas.

Steel frame clad with wood internally and patinated brass externally. An upper band of toughened glazing allows natural lighting during the day and shines out from it at night.

[Etherington 2009: sp]



### Newspaper kiosk, Frankfurt, Germany,

**Jörg Joppien**

Glass cube covered with movable steel panels for security while maintaining pleasing aesthetic.

Temporary structure.

Panels fold away to minimise intrusion on transparency of structure.

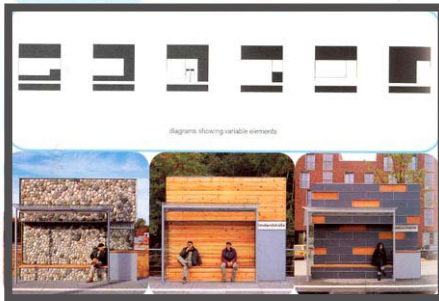
L-shaped, roof-anchored grid swings up to give the kiosk a distinctive profile.

Cantilevered overhang provides protection for customers and outside display racks.

+	-	<i>re:refresh</i> <sup>®</sup> application
<p><b>Tectonic</b> expression contrasting with stereotomic box.</p> <p>An area of <b>intermediate space</b> is created between the ticket windows and the public space by the wooden deck and overhanging tensile fabric roof.</p>		<p>Structural concept for structural frame, translated into steel to enable the use of slimmer components.</p> <p>Provide transition zone between public and kiosk interface.</p>
<p><b>Witty</b> play on Monopoly board game houses .</p> <p>Use of <b>archetypal</b> house shape creates interest to perceiver.</p> <p>Flip up cantilever canopy creates <b>intimate</b> space in front of kiosk, also doubles as lighting and backlighting for advertising.</p> <p>Units <b>secure</b> when closed.</p>	<p>Translation from concept a bit too direct.</p>	<p>Use of hinged flip-up canopy for security and advertisement / aesthetic at night.</p>
<p>Unit <b>secure</b> when closed.</p> <p>Kiosk doubles as public <b>art</b>.</p> <p>Sliding doors form shelves on inside, reduces amount of stock packed out every day.</p> <p>Band of toughened glass allows natural <b>daylighting</b>.</p>	<p>Form is somewhat arbitrary.</p> <p>Inviolable whole means difficult disassembly at end of product life.</p> <p>Difficult to customise, make your own.</p>	<p>Limit amount of stock to be unpacked each day.</p>
<p>Unit <b>secure</b> in outside location.</p> <p>Unit unfolds to form <b>canopy</b> and <b>threshold</b> to differentiate front of kiosk from public space.</p> <p>Glazed sides allow 24h <b>display</b> of goods.</p> <p>Hinged side panels allow different spatial <b>configurations</b> for effect or display.</p>	<p>Closed kiosk looks unfriendly.</p>	<p>Provide "threshold" between public and kiosk interface.</p>



# Precedents // kiosks & small buildings



## Description

### Tram stations, Hanover, Germany,

**Despang Architekten, 2000**

Thirteen tram platforms were designed for a new urban light railway, to coincide with Expo 2000.

Kit of parts consisting of rectangular blocks.

Block elements variable, different combinations of same elements were made possible.

Cladding could be tailored to respond to different contexts of the tram stops, e.g. use of brick facing in neighbourhood with predominantly brick houses, other materials used were glass, concrete, larch strips, pre-patinated copper and stainless steel mesh.

[Richardson 2001:114-117]



### Design cafe verandah, Hatfield, Pretoria

**+27 Architects**

Outdoor covered verandah as part of design shop and cafe.

Steel frame structure clad with fibre cement panels.

Floor finish is painted OSB, cost effective, durable, moisture resistant.

Transient structure which looks permanent (development owner wanted verandah to be temporary, easy to dismantle).

[author 2009]



### Bus shelter, Innovation Hub, Pretoria, 2009

Bus shelter outside Innovation Hub entrance gates.

Planar structure gets delicate treatment with finely corrugated steel cladding and patterned, punched steel bench.



### Fuel juice bar, Birmingham, UK

**Comet Catering Equipment Company Ltd, 2006**

Located in busy shopping centre.

Island type layout.

Safety glazing around sides prevent unauthorised access during day-time use and ensure hygiene (no sneezing on fresh produce).

[Comet Catering 2006:(sp)]

+	-	<i>re:refresh</i> * application
<p>Unified system with interchangeable components and makes each station unique.</p> <p>Materials anchor stations in local contexts and make each unique.</p>		<p>Provide elements or components (cladding / signage) unique to each station in aid of legibility.</p>
<p>Balance between stereotomic and tectonic expression.</p>		<p>Floor construction.</p>
<p>Delicacy of cladding finish and pattern.</p>		<p>Subtle pattern can soften large expanses of the same material.</p>
<p>Location ensures wider exposure to possible clients.</p> <p>Open to all sides makes display of goods and theatre of juice preparation.</p>	<p>Openness necessitates excessive packing up and night- time storage.</p> <p>Security weak, high likelihood of vandalism, possibly ameliorated by shopping mall security.</p>	<p>Front and sides being open draws attention, affords of a view of what's happening inside, while still remaining secure.</p> <p>Preparation and serving becomes theatre.</p>



# Precedents // kiosks & small buildings



## Description

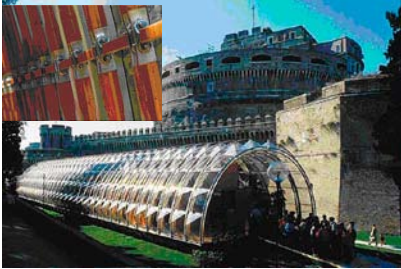
**West Cornwall Pasty kiosk, Gatwick Airport, London**

**Comet Catering Equipment Company Ltd, 2006**

Kiosk for pie makers franchise.

Located at busy airport close to entrance to train platforms.

[Comet Catering 2006:sp]



**IBM travelling exhibition,**

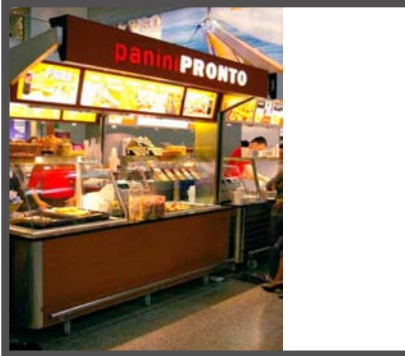
**Renzo Piano, 1986**

Temporary exhibition building for IBM on the future of information technology.

48m length, 12m width, 6 m height.

Constructed from 34 arches each consisting of 6 pyramidal polycarbonate elements in laminated wood and cast aluminium.

Each arch consists of two arches joined to floor/ platform and at the top.



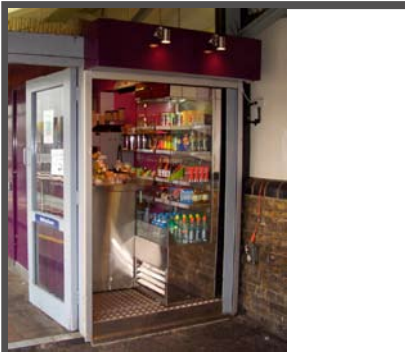
**Panini Pronto kiosk, Excel, London**

**Comet Catering Equipment Company Ltd, 2005**

Snacks and hot and cold drinks.

Paninis & hot snacks, require grill and microwave at least.

[Comet Catering 2006:sp]



**Espress Organics kiosk, Seven Sisters station, London**

**Comet Catering Equipment Company Ltd, 2005**

Small, built-in kiosk next to enclosed waiting room on train platform.

[Comet Catering 2006:sp]

+	-	<i>re:refresh*</i> application
<p>Attractive yet secure kiosk.</p> <p>Durable materials employed.</p> <p>Whole kiosk becomes display area.</p> <p>Traditional values expressed.</p>	<p>High counter with small overhang excludes disabled users.</p> <p>Stereotomic expression seems clumsy.</p> <p>Rounded corner glazing means more expensive repairs.</p>	<p>Glazing on the sides of the kiosks would allow views to the inside.</p> <p>Draws customer attention.</p> <p>Serving as theatre.</p>
<p>Demountable components allow for easy disassembly and flat packing for transport.</p> <p>Use of durable metal joints with wood struts ensure ease of demountability and preserves appearance.</p>		<p>Use small components with durable / robust joints make the structure easily demountable in future, yet structurally sound.</p>
<p>Menu display backlit for attracting attention and visibility.</p>	<p>Open nature of this kiosk requires a secure environment or security.</p> <p>Kiosk is not securable.</p>	<p>Allow for backlighting of menu displays at front of kiosk and back wall (provide power and wiring or provide for potential of future wiring, e.g. PVC conduit and extra MCB's on distribution boards).</p> <p>Point of sale (POS) at front (customer interface, preparation at back (for the sake of appearance, hygiene and safety).</p>
<p>Optimal size for server and one patron at a time.</p> <p>Optimal size for quick service.</p> <p>Lower rent than unit which allows many clients at one.</p>	<p>Kiosk looks squeezed in.</p> <p>Difficulty with deliveries due to narrow entrance.</p> <p>Difficulty at rush hour due to narrow entrance.</p>	<p>Utilise space optimally (small spaces can work).</p>

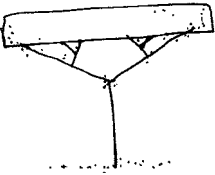




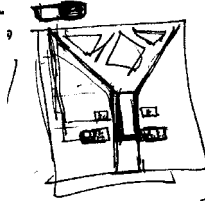
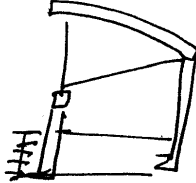
## 7.2 Conceptual expression

The **Acacia tree** as **meeting and trading place** and marker of route intersections is central to the Gautrain design philosophy. This theme was picked to form the main concept of the *re:refresh\** kiosks and to **conceptually link** the *re:refresh\** kiosks with the overarching Gautrain design and philosophy and **anchor** it in the Gautrain context.

### *"Treeness"*



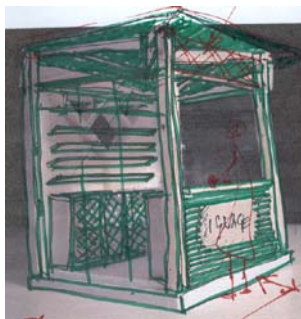
...tree shape embodied in three dimensional space...

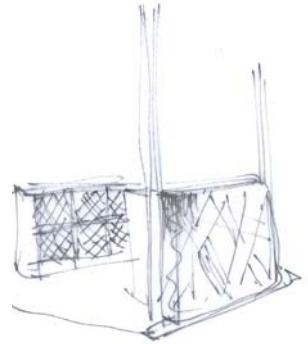


...a forest of trees swaying in the wind...



Exploration of tree concept overlaid over original box shaped concepts (which is important to meet the standardisation theory)

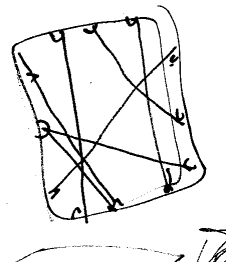




Use of natural colours and textures

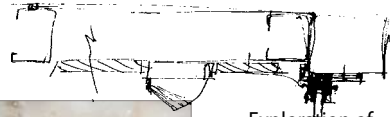


Application of the random criss-cross pattern to the back counter doors and lightbox

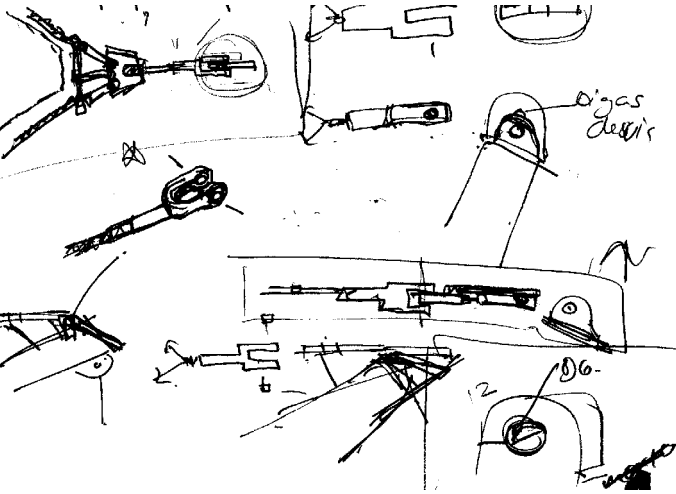


## Tectonics & joint consideration

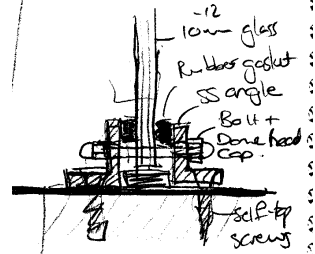
Use of Surinno solid surface, which resembles OSB texture. The fixing of the solid surface is similar to how a panel of OSB would be fixed, linking back to Semper's *Stoffwechseltheorie*. The play on the similarities between the two materials adjacent to each other also supports this theory.



Exploration of ceiling & lighting detail



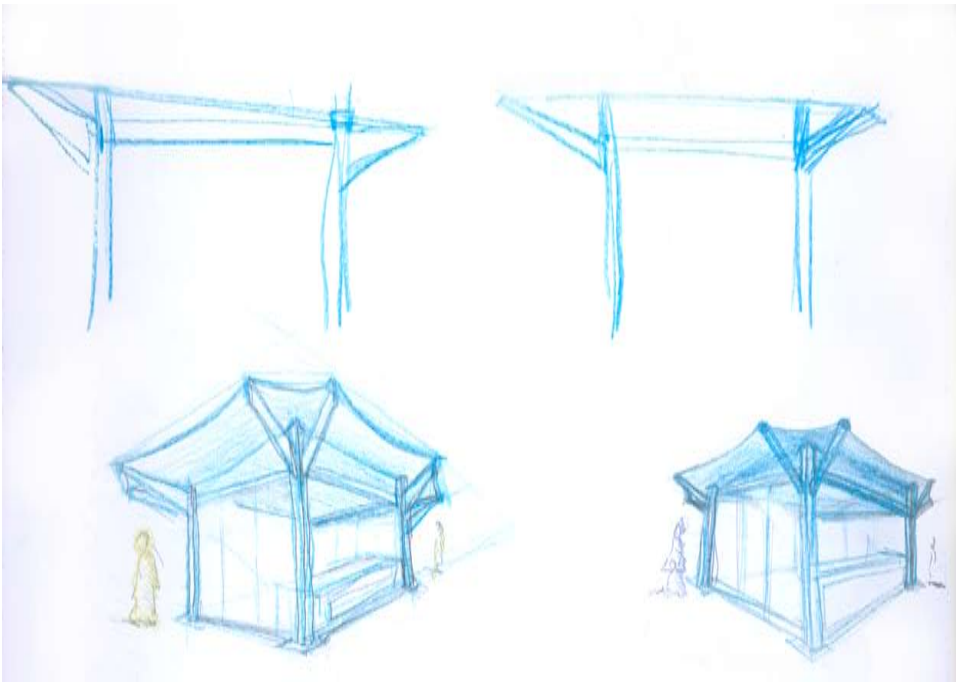
Exploration of tensile fabric roof rigging details



Exploration of glazing detail

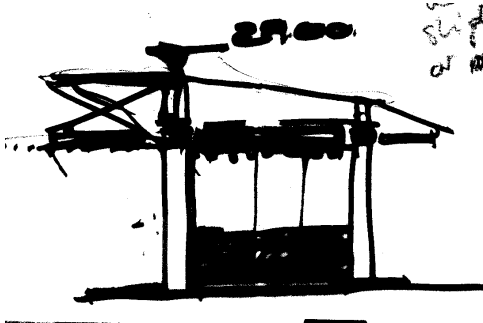


Rectangular steel structural frame with bolt-on corner posts for tensile fabric fixing

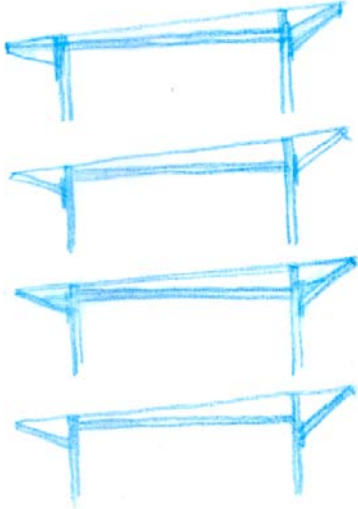


flat steel corner posts

vs circular section corner posts



Exploration of roof shape



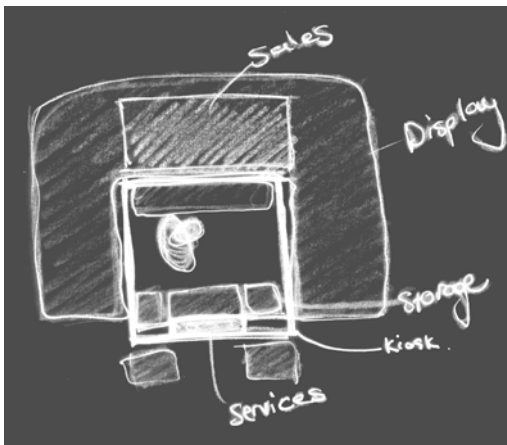
## 7.3 Factors to consider

### 7.3.1 Different functions

Based on the most common types of trade as investigated in Chapter 3 the types of functions *refresh\** could be adapted to include the following:

EAT: coffee, snacks (prepared off site)

SHOP: convenience, newsagents (papers, magazines), gifts, accessories. The various requirements and what is provided in the kiosk design is tabulated at right.



activity zones

	Requires	Provide
<b>EAT</b> Coffee	Counter space for coffee machine Under counter fridge Microwave oven Water supply Drainage Under counter water heater Wash up facilities / sink, dishwasher Storage	Counter top at front and back Adjust back counter length Counter top at back Supply to central point by Bombela Supply to central point by Bombela Back cupboard, conceal Back cupboard top, adjust cupboard length Cupboard at front and back, on-site / off-site
Snacks	Counter space for coffee machine and grill Under counter fridge Microwave oven Water supply Drainage Under counter water heater Wash up facilities / sink, dishwasher Storage	Counter top at front and back Adjust back counter length Counter top at back Supply to central point by Bombela Supply to central point by Bombela Back cupboard, conceal Back cupboard top, adjust cupboard length Cupboard at front and back, on-site / off-site
<b>SHOP</b> Convenience	Display bulk items Display small / specialty items Advertising Point of sale space Storage	Back cupboard, gridwall display Gridwall panels Wire & acrylic window display Front counter Cupboard at front and back, on-site / off-site
Newsagents	Display bulk items Display small / specialty items Advertising Point of sale space Storage	Back cupboard, gridwall display Gridwall panels, wire & acrylic window display Wire & acrylic window display Front counter Cupboard at front and back
Gifts	Display bulk items Display small / specialty items Advertising Point of sale space Storage	Back cupboard, gridwall display Gridwall panels, wire & acrylic window display Wire & acrylic window display Front counter Cupboard at front and back
Accessories / gifts / souvenirs	Display bulk items Display small / specialty items Advertising Point of sale space Storage	Back cupboard, gridwall display Gridwall panels, wire & acrylic window display Wire & acrylic window display Front counter Cupboard at front and back

## Section /perspective from right side

The cantilevered canopy separates public space from the more intimate "meeting place" in front of the kiosk





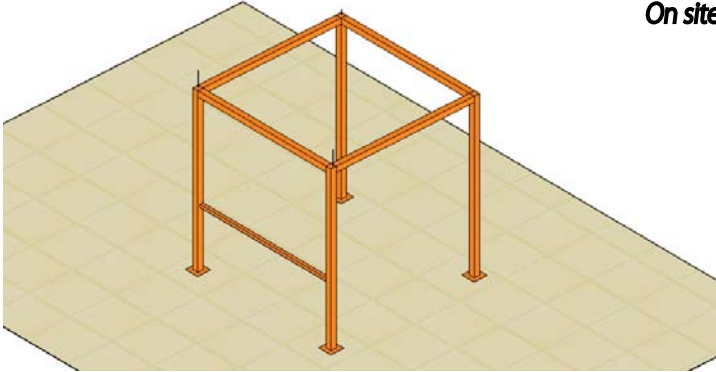
The modular nature of the components means the glazed door could be switched to the other side for access from the right



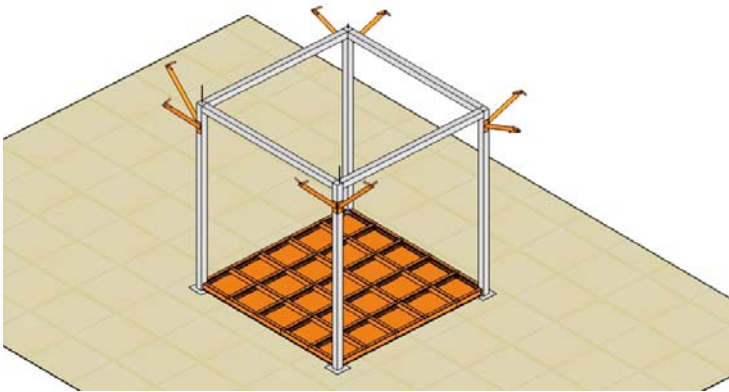
57. Various views of the basic kiosk unit



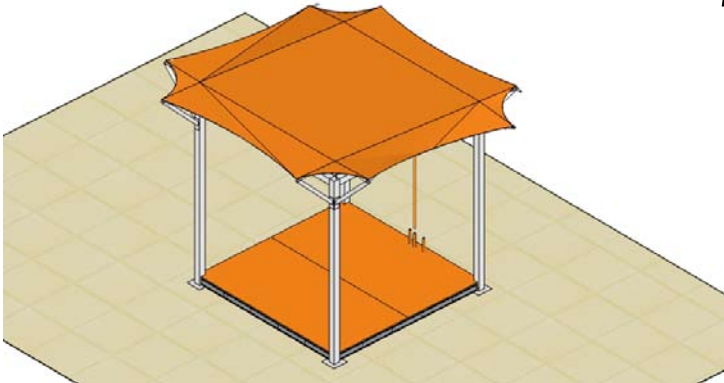
*On site assembly sequence*



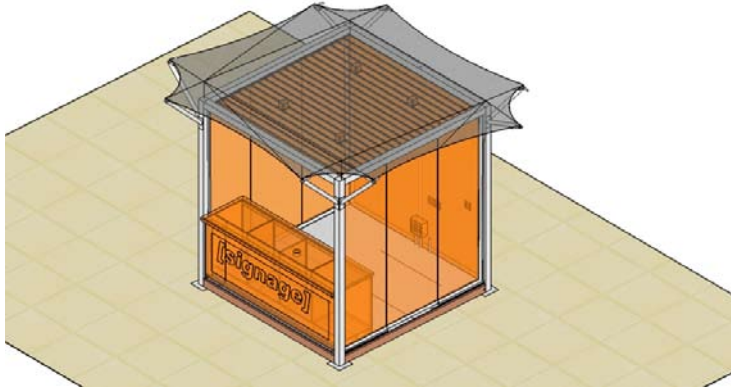
*Structural steel frame*



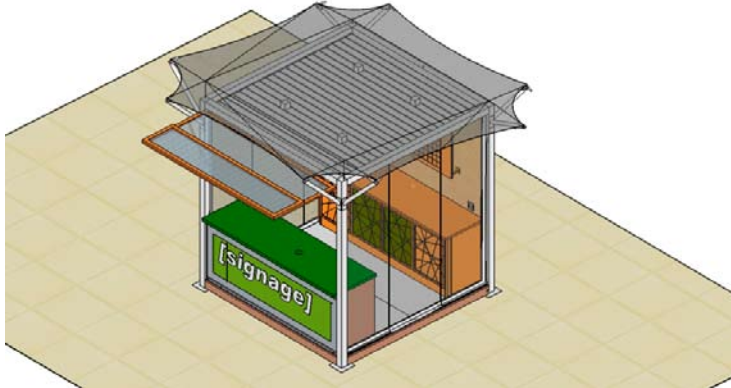
*Steel floor grid and detachable masts for tensile roof*



*OSB floor finish and tensile roof, services, PVC conduits*



***Infill  
wall cladding, glazing, front counter***



***Cantilever canopy, back counter,  
display panel***

56. Figure sequence outlining the assembly of a single re:fresh kiosk on site

# Model exploration



View from front left side      Steel column & masts

View from back right side



Underside of canopy and ceiling



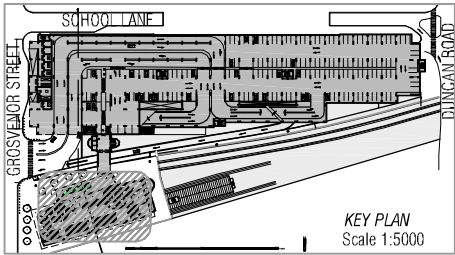


Interior view showing back wall, display unit and ceiling  
View through glazing to back wall & storage/ display counter

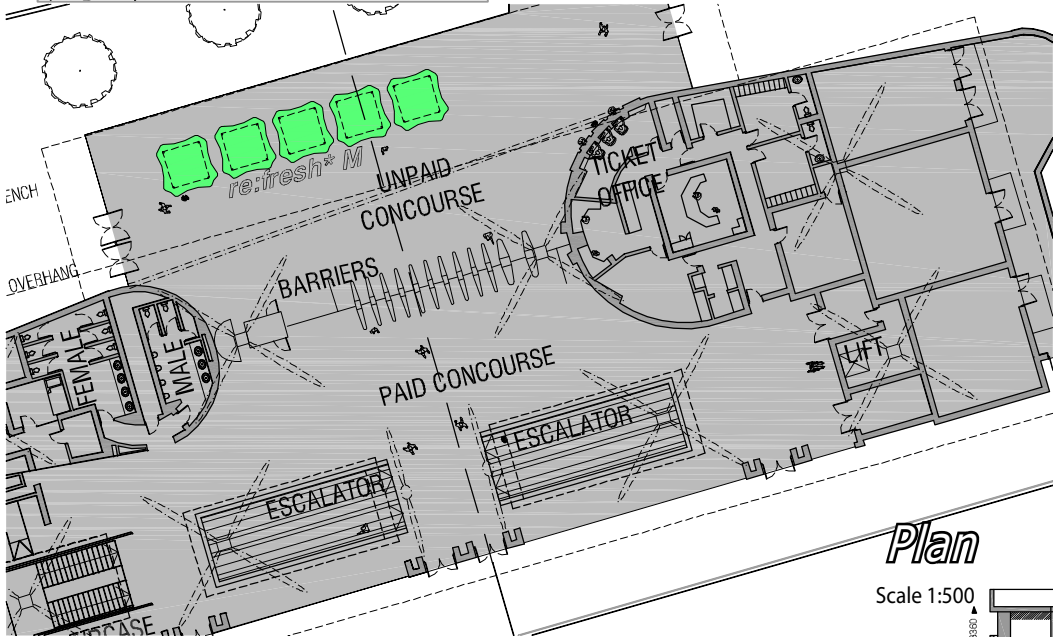


# Kiosk location in Hatfield station

The kiosk is located in the public, unpaid concourse of the station

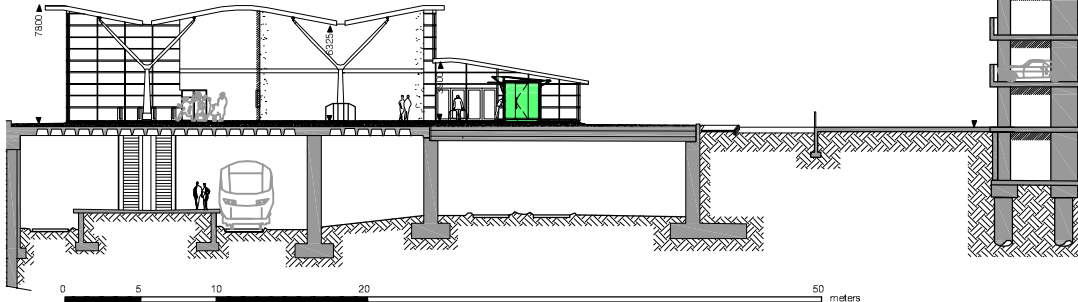


KEY PLAN  
Scale 1:5000



Plan

Scale 1:500



Section A-A

Scale 1:500

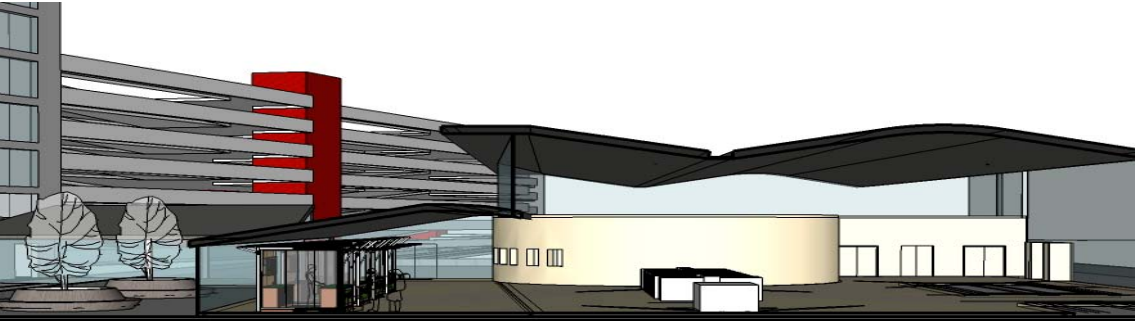
*Hatfield station lobby (unpaid concourse)*



*Location at Hatfield station*



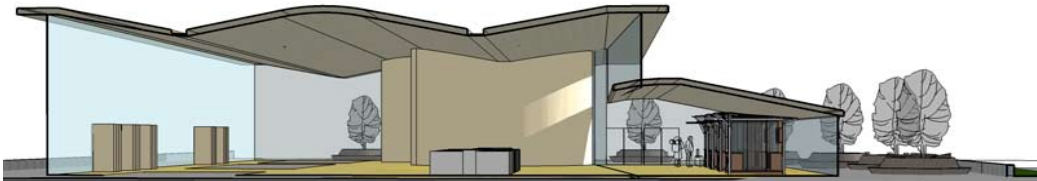
*Hatfield station from the west (Grosvenor St.)*



*Section showing kiosks in entrance lobby*



*Section through station*





*The kiosks inside the Hatfield station located in the public, unpaid concourse provides an intermediate space between open public space, and station public space*







## Newspaper kiosk

### Section /perspective from left side

A3 clear perspex pockets on tensioned suspended wire rope display

Additional display stands

Back cupboard doors with wire as goods display

Section view of back wall





## Take-away coffee kiosk

### Section /perspective from left side

Fit out with tenant supplied catering equipment

Warm counter top display

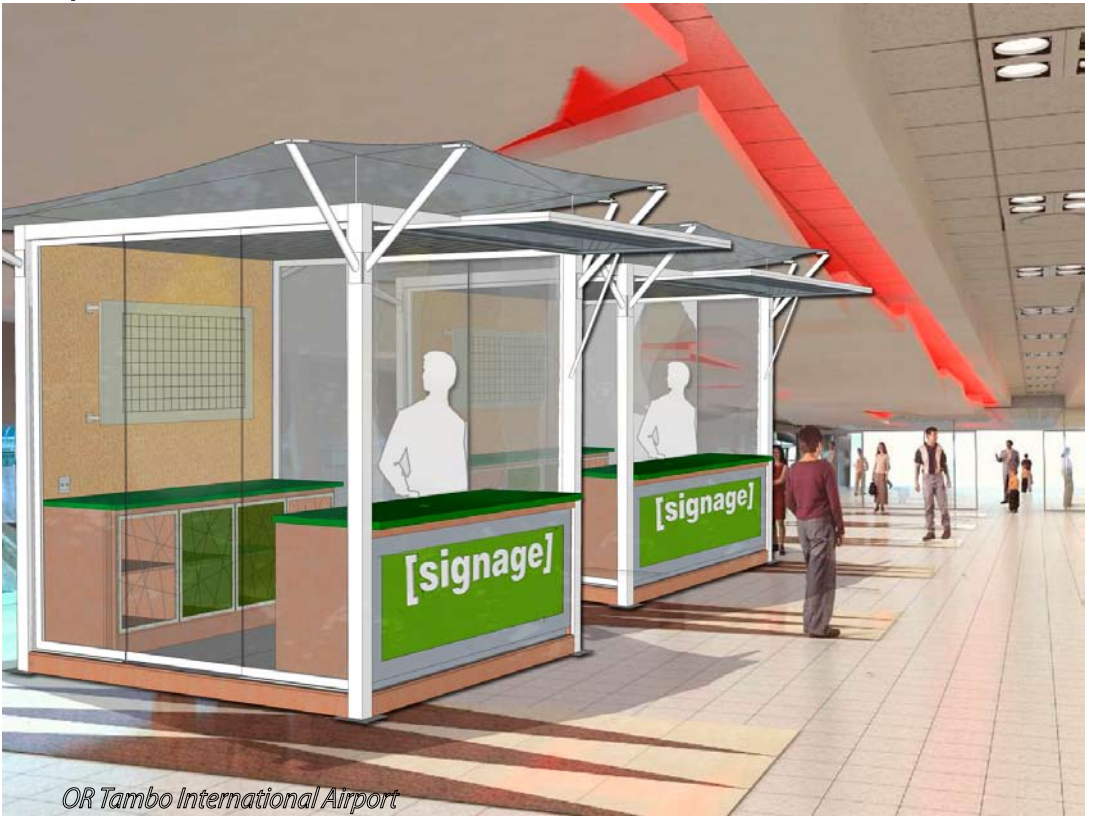
Water and drainage provided

Menu sign suspended from steel beams above ceiling

Section view of back wall



# Impression of kiosks at GRRL stations



*OR Tambo International Airport*



*Centurion station*

### 7.3.2 Services

Due to the variety in GRRL sites, it is only possible to suggest a strategy in terms of services, as follows:

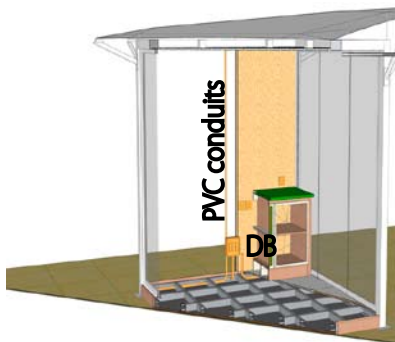
- \* Locate kiosks over void & perforate slab to access services zone underneath
- \* Alternatively locate kiosk close to existing service connections
- \* Service connections to be provided for by Bombela
- \* Access services above suspended ceiling from underneath (dropdown into kiosk wall)

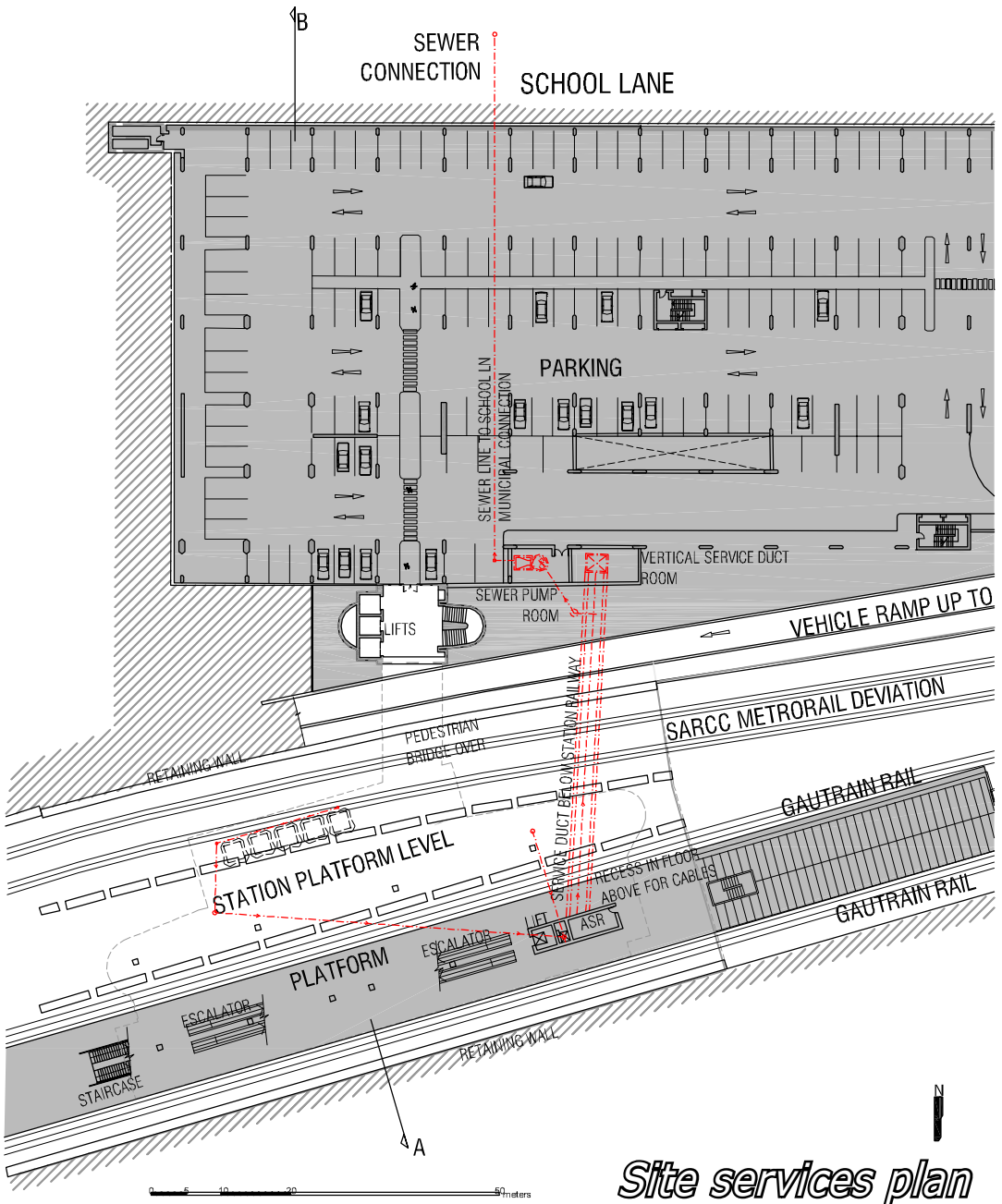
Power, water and drainage are to be provided from the nearest connection point and would have to be provided by Bombela. This might necessitate some excavation and consequent damage to existing station floor finishes. Where walls are damaged they should be repaired and made good. The finish would probably never be satisfactorily matched to existing terrazzo. Therefore, floor damage where shallow trenches are dug would be repaired with stainless steel access tread plates to ensure access for maintenance.

Overhead **cable trays** could also be employed to supply power from above the unit. Each unit is provided with four power supply PVC conduits so mains power could be supplied from sides, back, or top. The side conduits also allow for future connection to B unit extensions.

The same goes for water supply and drainage.

It is suggested that Bombela provide a suitable length of cable or pipe to the optimum location for kiosks into which the individual tenants could, if necessary arrange connections, done with the approval of Bombela by approved contractors. Another system, that could be employed with reference to drainage is a manifold system. This is utilised in pod construction projects where bathrooms or kitchens are manufactured off site and craned into position on site with fully finished interiors. The pods are then connected to power, water, drainage and HVAC systems from connections blocks on the exterior of the pod, which later becomes part of a service duct usually accessed off of a corridor (in the case of hotels or group accommodation for example).





# Site services plan

Basement & platform level

Scale 1:200

### 7.3.3 Communications

It is proposed that voice and data connections be handled **wirelessly**. With a VOIP (voice over internet protocol) phone system the connection would be handled by wireless internet connection. VOIP phone handsets use an internet connection instead of regular data cables for users to make calls. This system would be administrated by Bombela per station.

Tenants would need to subscribe to the system in order to connect to the secure wireless account. The same internet connection would serve the pdx (credit card) machines for card transactions.

The basic strategy could be summed up as follows:

- \* Provide WiFi (wireless internet connection) for voice and data.
- \* Provide VOIP phones (voice over internet protocol).
- \* WiFi would also be available stationwide for e-mail and internet access to commuters

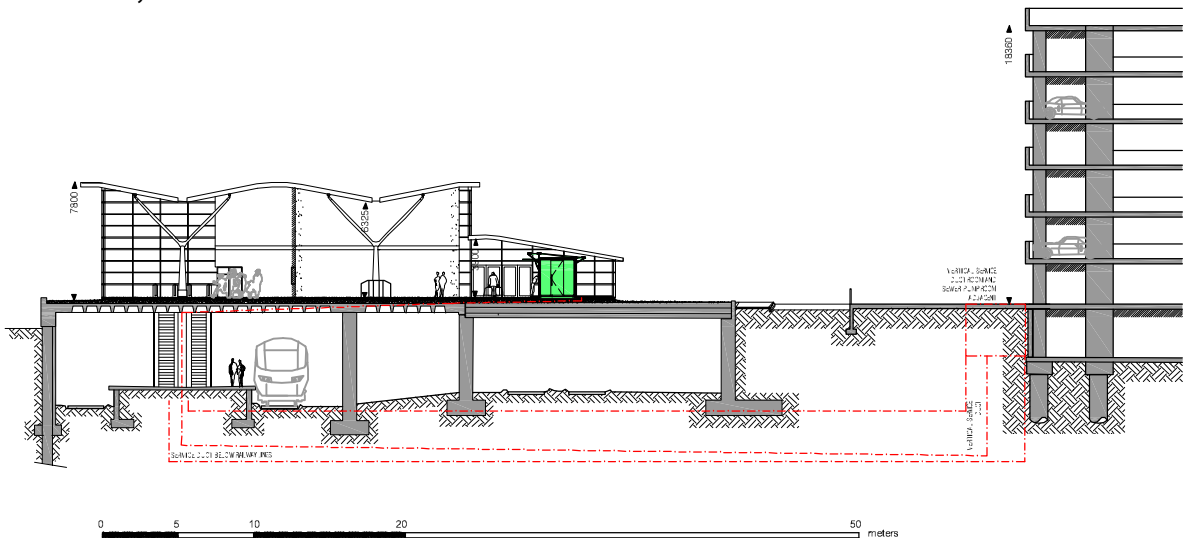
### 7.4 Security

The unit sides are **laminated safety glazing**, guarding against accidental impact, but also acts of petty vandalism.

For temporary day and night-time security the front of the unit is easily lockable by means of a hinged gas lifted screen / **canopy**. The cantilevered canopy also extends the space associated with the kiosk, distinguishing it from the surrounding public space and creating a more **intimate** trading platform.

### 7.5 Storage

Storage occurs in the front and back **cupboards** inside the unit. Large volume storage occurs off-site or in hired storage space in the station proper. Due to Bombela's provision that no cooking activities occur inside the station buildings, food and snacks vendors would have to produce food off site and have it delivered to site daily or every few days.



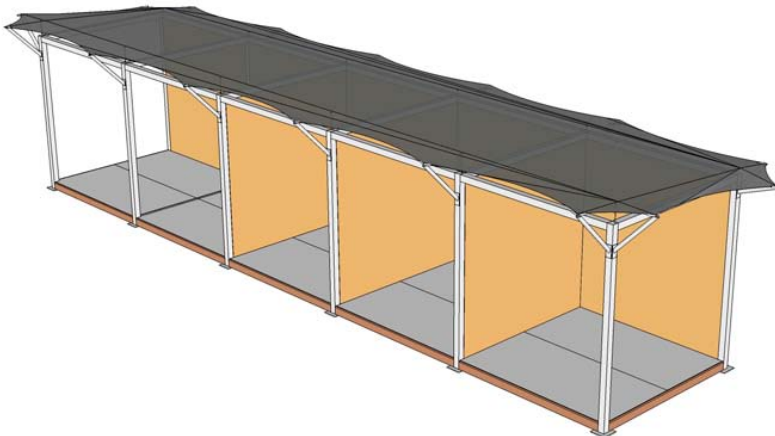
*Services section A-A*

Scale 1:200





Perspective



Isometric projection showing layout possibilities of pavilion

## 7.6 Potential future configuration

Due to the adaptability of the kiosk, there is an option to create a pavilion version, combining kiosks into a row. This is meant only as a suggestion, and has not been fully technically resolved.

A pavilion would offer two important benefits:

- \* Easier and more cost effective services reticulation
- \* Stronger sense of place due to concentration of kiosks.

In order to attach kiosks next to each other with just one steel column in between, one corner mast would need to be unbolted and the redundant glazing on each unit replaced with an OSB partition wall. The tensile roof would need to be replaced with a larger roof covering the entire row.

This option enables more tenant choice as two or more units could be combined under one tenancy to create a small bar or cafe. This would be a further increment towards the implementation of *re:fresh\* L*, according to the *re:fresh\** deployment strategy in Chapter 5

Because of the design of the kiosks to be adaptable, the infill components (walls, doors), would be regarded as a kit of parts, with new ones needing to be designed to fit the new layout. In particular this applies to the central units, where an infill unit with an adapted counter and front access door would be manufactured.

With the reorganisation and adaptation, any changes in the service counters would be accommodated due to the modularity of the units.



*Pretoria station*

## 7.7 Materials and jointing

Material selection and jointing was based on the medium (tectonic) and micro level design guidelines mentioned in Chapter 4:

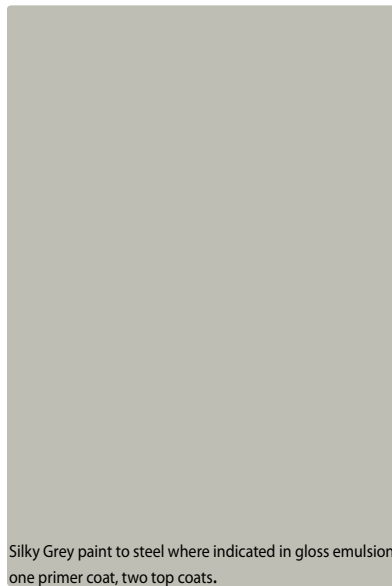
Joints and materials need to be **robust** enough to be easily repaired or altered, The **cost** of materials and manufacture need to be low enough to make the investment feasible to Bombela as lessees as well as for the tenants. A high manufacture cost would imply high **rental fees**. The higher the cost, the higher the turnover generated would need to be. For small kiosks moving relatively small amounts of stock, the rental would need to be fairly low. For example, kiosks in Menlyn Park shopping Centre amount to approximately R12,000 per month. The tenants would have had to weigh the rental fee against the forecast likelihood of and amount of custom they could expect.

The visual and tactile aesthetic needs to reflect and support the chosen **tree** concept. Materials such as the oriented strand board (OSB) had been selected because of the texture reminiscent to wood without having to be a carefully finished grained wood. The **translation** of the tree concept to product therefore attains a higher level of conceptual expression. Gottfried Semper's *Stoffwechseltheorie* had been put to good use as part of the paradigm of tectonic expression espoused in this study. The finish of the solid surface display system to the back wall had been selected to resemble the "grain" of the strands of the OSB.

The qualities and characteristics of the main materials used should be discussed.



Primary Green Formica laminate to counter top



Silky Grey paint to steel where indicated in gloss emulsion, one primer coat, two top coats.

# Material //

# Oriented strand board (OSB)

**Where applied:**

Floor finish  
Back wall finish, inside and outside

**Fixing:**

Countersunk wood screws

**Surface treatment:**

Floor - Satin finish white floor paint  
Wall - satin finish polyurethane varnish

**Properties:**

Made from softwood strands approximately 75mm long placed in layers in different directions and compressed with exterior grade water resistant resins.  
Moderately water resistant  
Environmentally sound use of normally discarded scraps of wood.  
Cheaper than plywood  
Good strength in both directions.  
Uniform, decorative appearance.  
Suitable for sheathing, flooring and decorative panels.

**Size:**

18mm thick for flooring (see appendix 3).  
15mm thick for back wall.  
Sheet size 2500 x 1250mm (from PG Bison).  
Cut one sheet in half for one kiosk unit floor

**Reason for selection:**

Aesthetic - strands of wood bring texture and movement and suit the tree concept.

# Material //

# Saligna wood (*Eucalyptus*)



**Where applied:** Ceiling slats  
Supawood veneer to storage counters  
External skirting boards

**Fixing:** Countersunk wood screws

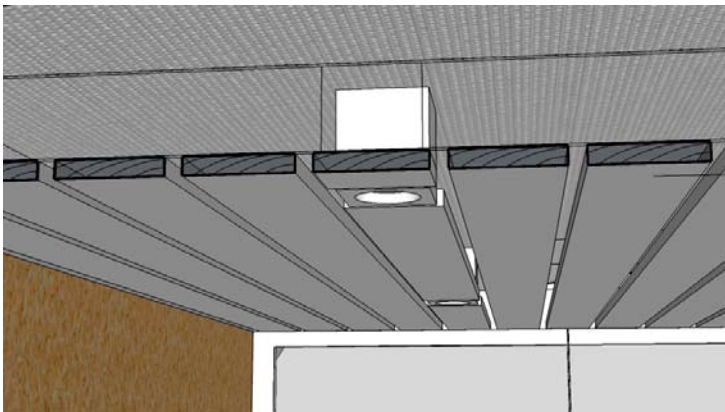
**Surface treatment:** Satin finish polyurethane varnish

**Properties:** Fairly heavy wood (approx. 920 kg/m<sup>3</sup>).  
Fairly hard  
Coarse, even grain, reasonably easy to work.  
Moderately durable.  
Use in construction, flooring (light domestic) weather-boards, boat-building fencing and plywood (veneer needs careful drying)  
Generally pale straw coloured wood, occasional pinkish or red hues



**Size:** Standard timber size 100 x 19mm is reduced to 94 x 16mm when planed as used in ceiling.

**Reason for selection:** Relatively inexpensive locally grown timber, good appearance and durability



# Material //

# Surinno solid surface



**Where applied:**

Gridwall display unit

**Fixing:**

Anchor bolt fixed to 25x25mm rectangular steel frame, which is in turn bolted to steel angle brackets fixed through OSB into metal studs in back wall.

**Surface finish:**

Semi-matt

**Properties:**

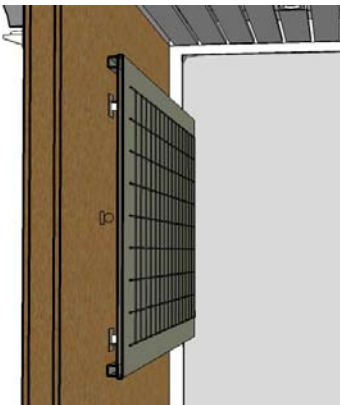
Manufactured from acrylic, modified polyester resin and mineral fillers, mainly Aluminium Hydroxide (ATH). Suitable for vertical and horizontal applications (12mm standard thickness)  
Non-porous  
Consistent finish throughout due to manufacturing process, making it easily to lightly sand and polish out scratches and damaged areas.  
Heat and stain resistant  
Durable  
Low maintenance  
Scratch resistant  
Hygienic, due to non-porosity, stains are not absorbed, leaving no substrate for microbial action. Fabrication technology can achieve seamless joints, reducing potential for microbial growth.

**Size:**

3050 x 765 x 12mm (from PG Bison)  
Half sheet used per kiosk for cost saving - determines display size in interrelation with gridwall sizes

**Reason for selection:**

Aesthetic. When backlit, the pattern of the solid surface resembles the OSB surface. This play on material characteristics lends depth to the scheme and links to the idea of Stoffwechseltheorie as part of tectonic expression.  
Surface is fairly translucent, and achieves attractive and attention focusing glow on display / menu area.



# Material //

# Satine 5500 tensile fabric



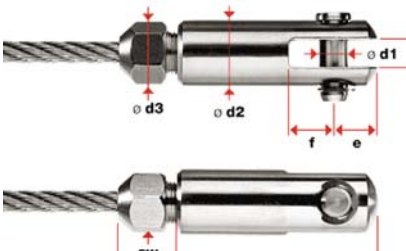
**Where applied:** Roof

**Fixing:** Tensioned stainless steel wire fixed with NF Inox anchoring / rigging system.

**Surface treatment:** Factory applied PVC coating

**Properties:** Weight 535 g/m<sup>2</sup>  
Heavy weight PVC coated glass based mesh fabric, RF welded or stitched in zig zag pattern.  
Used for internal structures, including ceilings and screens.  
Fire rated to BS 476 Pt 6 & 7. Class O M1, B1.  
Can be printed.

**Reason for selection:** Filtered light quality similar to tree canopy and extension beyond kiosk creates intermediate public space.  
Light, airy feel desirable.



# Canopy / screen // Specimesh, twin-walled polycarbonate



**Where applied:** Cantilevered front canopy / lockable security screen

**Fixing:** Bolted into steel frame (see technical)

**Surface finish:** White polyester powder coated

**Properties:** Relatively inexpensive versatile precision mesh product. Available in a wide variety of aperture and wire diameters. Flush-cut all round (no sharp edges). Ease of installation when welding and framing. Easy to profile.

**Size:** 2400 x 1200 x 3mm (selected for this application)  
100 x 50mm mesh aperture

**Reason for selection:** Security to front screen, closed and locked at night. Appearance, colour and pattern.

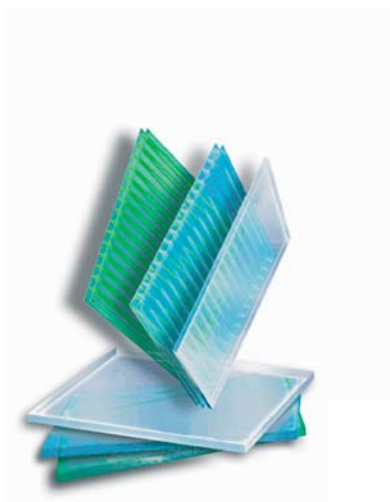
**Where applied:** Cantilevered front canopy / lockable security screen

**Fixing:** Bolted into steel frame (see technical)

**Surface finish:** Frosted (clear)

**Properties:** High impact strength (up to 80 times stronger than glass.)  
Fireproof  
Variety of colours.  
UV protective coating- normally used as light duty roofing.

**Size:** Maximum width 1200mm, 4mm thickness





# Product //

# Gridwall display system



**Where applied:**

To Surinno backlit display

**Fixing:**

Steel brackets anchor fixed through solid surface

**Size:**

750 x 1220 x 3mm.  
75 x 75mm mesh apertures

**Accessories:**

Variety of proprietary, commercially available hooks, shelves, angled shelves, shelf brackets, baskets, clothes rails etc.

**Reason for selection:**

Readily available (supplied locally e.g. from Cynton Wire products or online ordering)  
Relatively cheap.  
Commercially available and adaptable, highly customisable system.

CHROME-BLACK-WHITE				GRID ACCESSORIES		50
GRID FACE-OUT HARDWARE (CHROME-BLACK-WHITE)						
7 BALL MATERIAL	8 BALL MATERIAL	1/2 STRAIGHT ARM	1/2 CAPPED HOOK	1/2 HOLE HOOK		
PW076	PW078	PW075	PW077	PW079		
GRID BRACKETS (CHROME-BLACK-WHITE)						
STANDARD BRACKET	SHelf BRACKET	ALTERNATE SHelf BRACKET	ALTERNATE SCRAMBLER			
PW080 (1/2 LONG)	PW081 (1/2 LONG)	PW082 (1/2 LONG)	PW083 (1/2 LONG)			
GRID SHELVES (CHROME-BLACK-WHITE)						
STRAIGHT SHELF	SLANT SHELF	STRAIGHT BASKET	TRIANGULAR BASKET	STRAIGHT SHELF W/ UP		
L 20 x 75"	PW084 20 x 75"	PW085 20 x 75"	PW086 24 x 24"	PW087 24 x 24"		
SPECIAL GRID BASKETS			GRID ACCESSORY DISPLAYS			
			TEE ON SHELF DISPLAY	BOOK SHELF	MILKMAKING ARM	
			PW088	PW089	PW090	
			SPECIAL GRID BASKETS			
			PW091	PW092	PW093	



from Spazio lighting



**Where applied**

Adjustable ceiling down light

**Size:**

82.5 x 82.5 x 90mm height

**Specifications:**

220V,  
Halogen lamp 50W / GU10  
IP 20  
Aluminium body and base.  
Surface mounted  
Adjusts and rotates

**Finish**

Aluminium

**Reason for selection:**

Fits flush with timber ceiling slats.  
Adjustable to adapt to changing displays or focus / activity areas.  
Suitable light levels for retail environment.

# Fluorescent tube lamp



**Where applied**

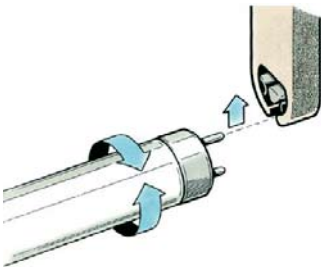
Display board  
Front light box / signage

**Size:**

26mm dia, 600mm length  
18W

**Specifications:**

Appropriate lamp holders / ballast to be provided, two areas to be switched separately to light switch



## 7.8 Conclusion

During the course of this study, **refreshment, retail and supporting facilities** at transport interchanges had been thoroughly investigated. Through observation and precedent studies the five most important activities at train stations had been condensed as follows:

- \* EAT
- \* SHOP
- \* ACCESS INFO
- \* WAIT
- \* and ABLUTION.

Ablution facilities had already been provided at GRRL stations. However, **refreshment, retail and supporting facilities** had not. It had been established that Bombela was aware of the potential financial benefits of such facilities, but at the time of study, no serious proposals had been made in this regard.

This potential for intervention had been explored and researched and the *refresh*\* strategy for deployment of retail and associated facilities had been developed. The strategy outlines three levels of intervention, *refresh*\*S, *refresh*\*M and *refresh*\*L, differentiated by means of scale, as well as time frame and duration. The scales range from small through medium and large, and duration from short to long term. A phased deployment of retail and refreshment facilities had been suggested, including the 5 station activities as identified, at the different levels. This strategy not only takes into account the needs of station users, but also the actions required by management and the operation and lifecycle of the *refresh*\* intervention.

The complex design approach had also been formulated on the three levels of scale:

- \* **macro**, or neighbourhood to building interior scale, focused on the **creation of places** and the railway station as public meeting place. This was embodied in the design and the ancillary function of the kiosks of *refresh*\*M as places within a place. An intermediate place between public space and a more intimate, ephemeral meeting and trading place had been created.
- \* **medium**, or unit scale, informed by the importance of **tectonic** expression in interior architecture. This had been further explored in a detailed technical resolution. Importance had been placed on the details of construction and material selection.
- \* **micro**, or unit & details scale informed by various factors relating to **cost** and **sustainability**. The characteristics of adaptability and providing choice to tenants had been incorporated in flexible technical design details and modularity to enable adaptation, ease of demounting at the end of the product lifecycle and potential for reuse elsewhere. Providing tenants with choice and not imposing an inflexible design on them, created a more approachable and customisable design would heighten end user affinity for the design product. The adaptability of the kiosks also increased the sustainability of the design by making it easier to repair and maintain.

The standardisation of the kiosks, while seemingly in opposition to the principles of sustainability, would allow for fast and less messy installation, saving on time and project costs.

Materials had been chosen for cost effectiveness, except where the additional cost had been deemed justified to achieve a certain aesthetic or technical requirement, such as the choice of the Surinno solid surface as part of a display design.

The design of the unit had to be carefully balanced between the cost relative to the product lifecycle, the expected level of transience, the standard of design at GRRL stations and the Gautrain system identity. As such the kiosk design represents a careful balancing act, taking into account various factors, and embodying various theoretical discourses.

This study had provided valuable information to the field of interior architecture on user needs at transport interchanges, as well as design as a tightrope act, balancing the needs of users with those of clients, costs with aesthetics and theoretical discourse with everyday practicalities.