

# CI Structures - Turnkey Leisure Centre

September 2010



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HKR has been approached by CI structures to develop a proto type leisure centre, combining the Sprung building system and conventional building products. The purpose is to provide local authorities and other sports and community organisations with a cost effective, fast track, turnkey solution for sports, leisure and community facilities.

CI Structures Ltd. is a Manufacturers Representative for Sprung Instant Structures Ltd (North America) operating throughout Europe, the Middle East and Africa.

Sprung Instant Structures Ltd is a North American company that has been in business since 1887. The company manufacture the most technologically advanced prefabricated framed membrane structures available on the market. The Sprung system is used for applications as diverse as churches, museums, libraries, casino complexes, warehouses, sports and assembly halls, aircraft hangars, prison complexes and hospitality facilities.

The Sprung building system is effectively a substitute for conventional bricks and mortar construction but costs approximately one third (full turnkey price) of the comparative price, can be erected in one fifth of the time and lasts upwards of 60 years.



# Concept

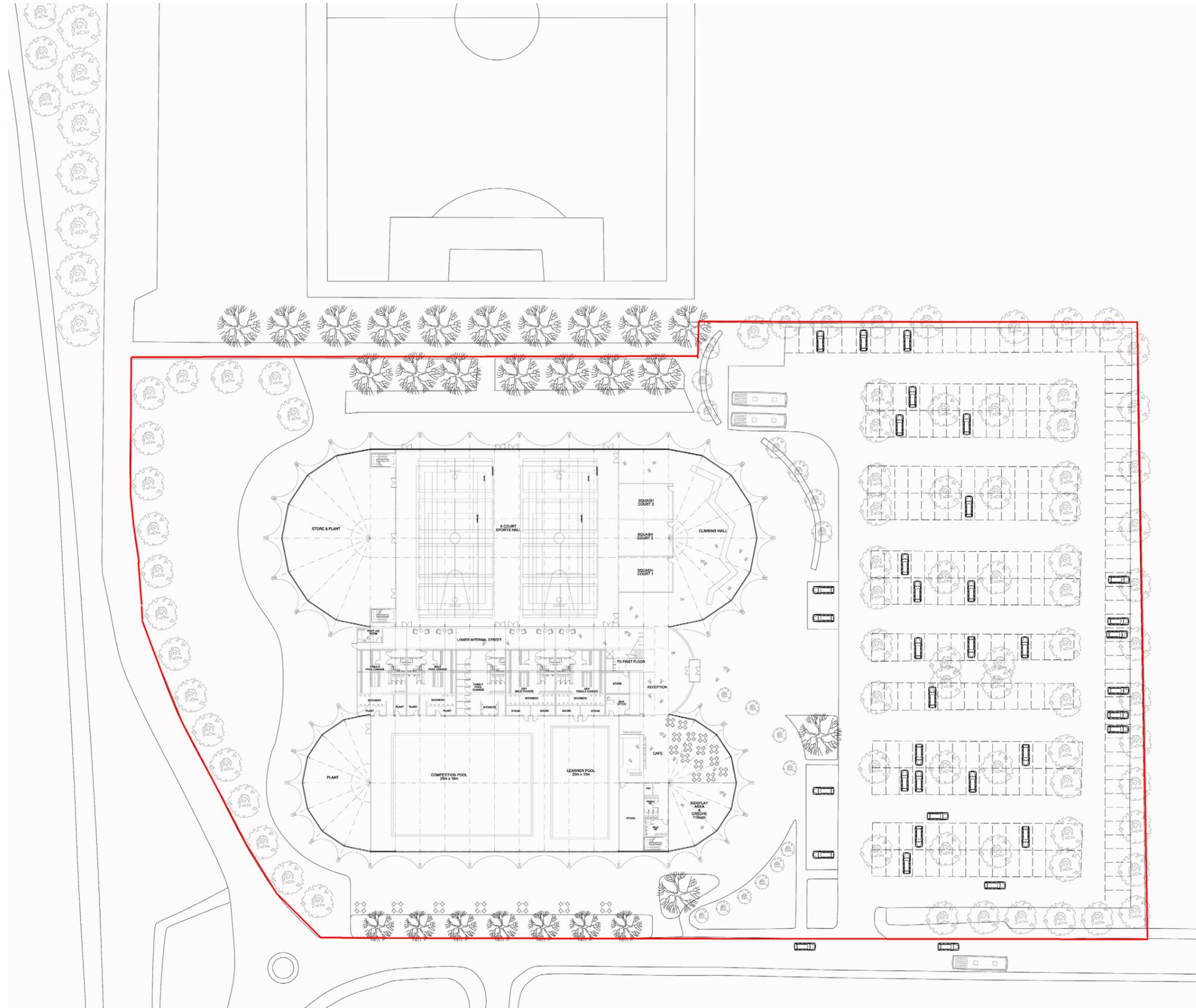


We have based the concept for the building on that of a pavilion / event type building similar to that seen at the Lord's cricket pavilion, O2 Arena or the Earth Centre as we believe this lifts the aesthetic appearance of the building from that of the standard system to give the building a sense of occasion.





# Site Plan



For the purposes of design and cost comparison the proposed building had been designed to be located on a site in Surrey.

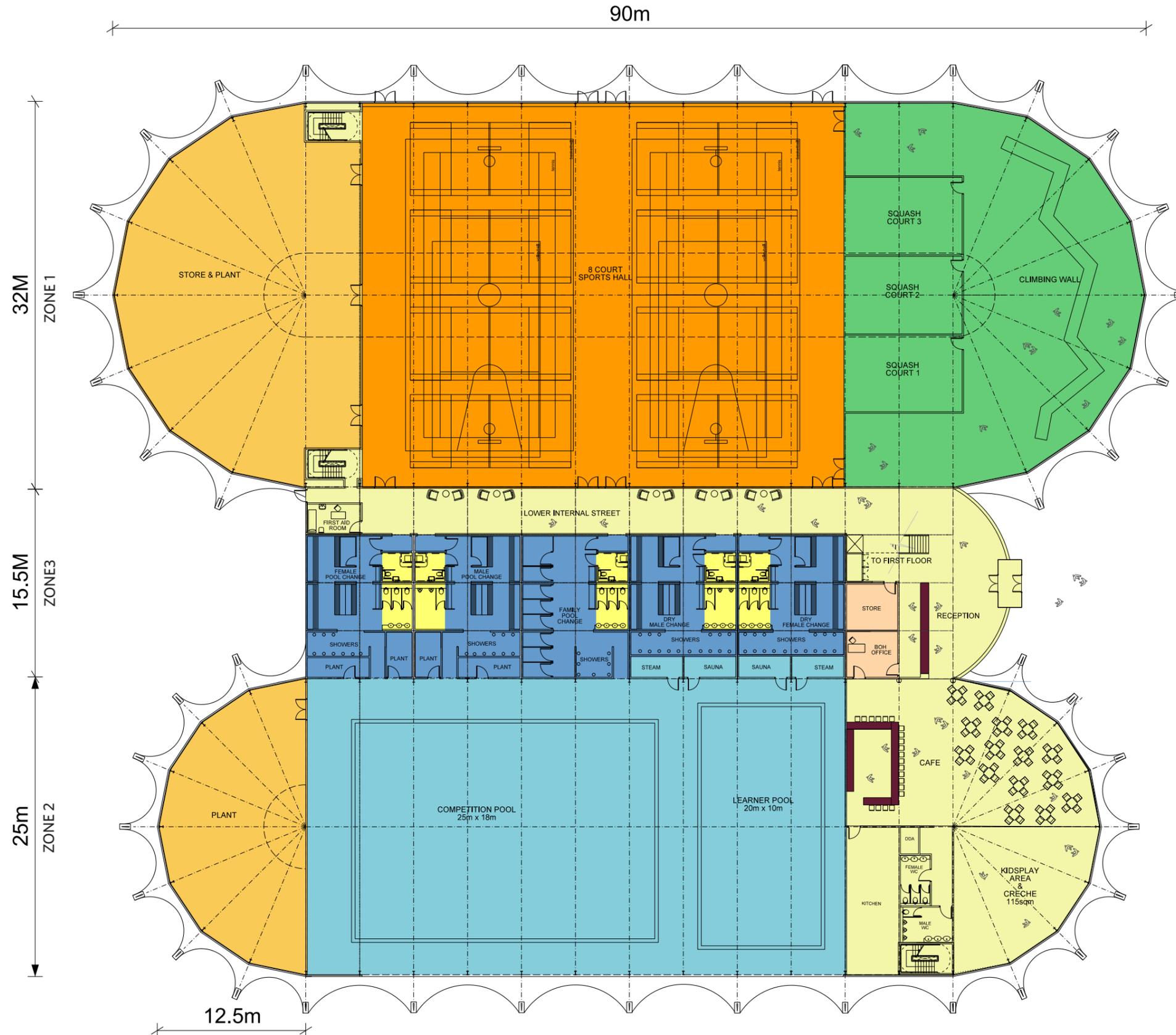
The proposed facilities to be provided have been based on the following:-

- › 25m eight lane Pool (200 spectator seating)
- › 20m Learner Pool (moveable floor)
- › 8 Court Sports Hall
- › Crèche facilities
- › 120 Station Fitness Suite (100)
- › Multi Purpose Rooms
- › Internet Café
- › Climbing Wall (variant)
- › Reception
- › Children's Play Areas

In addition to this there is onsite car parking and building plant, store & staff facilities.



# Ground Floor Plan



The building is based in the CI structure system creating 3 distinct zones to the building

Zone 1 - Spanning 32 metres contains the sports hall/ squash courts & climbing wall -All double height spaces and Martial Arts Area.

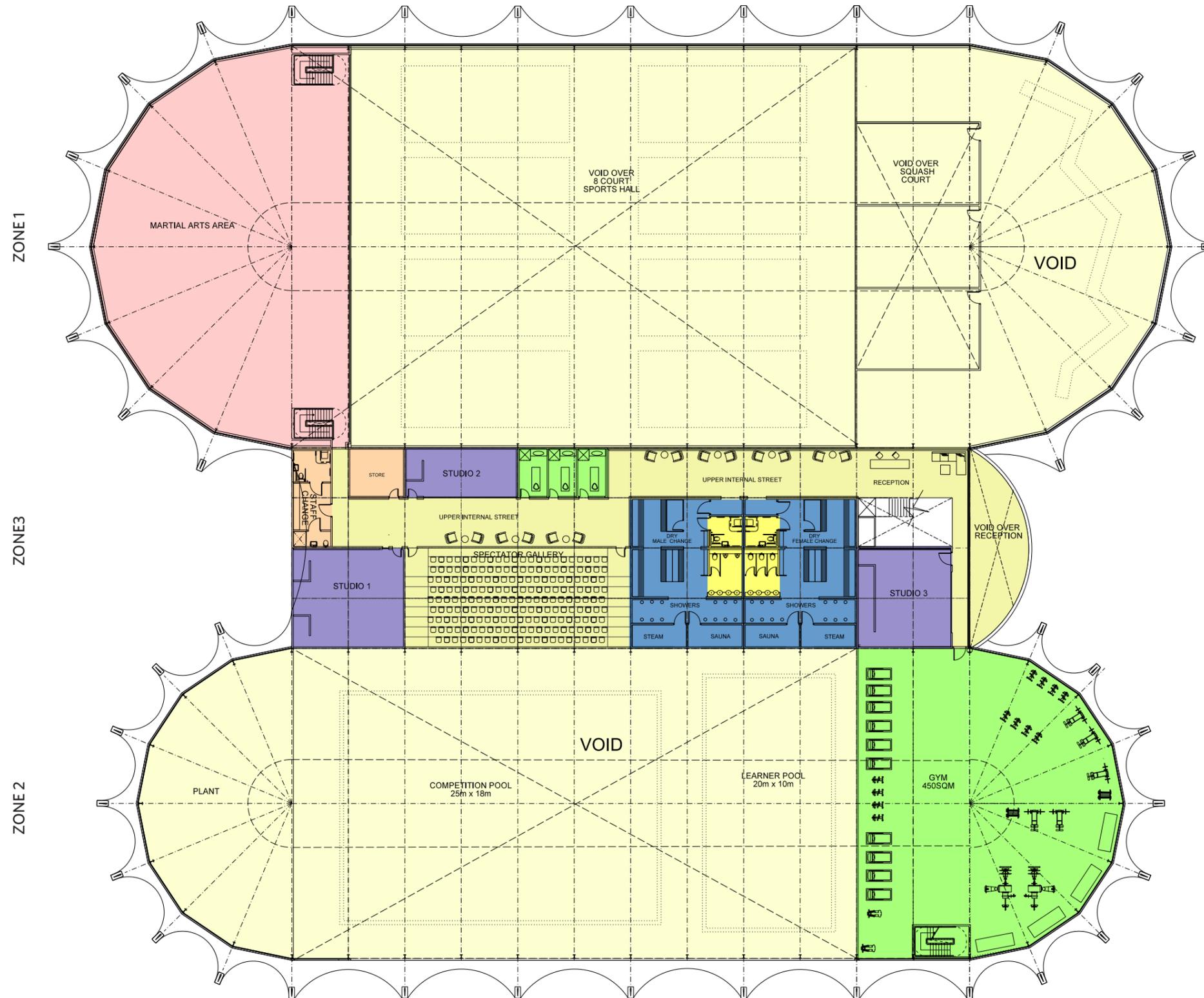
Zone 2 - Spanning 25 metres contains the swimming pools - Double height & /café/crèche single height with dance studios at first floor and Gym Area

Zone 3 - Spanning 15 metres consists mainly of changing facilities, showers, sauna and circulation at ground with additional changing at first for the gym & studios and viewing gallery for the pool - we have based the layout for zone 3 on a pod modular design grid so you have the option to go traditional construction OR Prefabricated pods.

The whole roof area being covered with the architectural membrane material with travelling beyond the building line to create a canopy around the building and held in tension using posts, this gives the building a greater presence and character.



# First Floor Plan

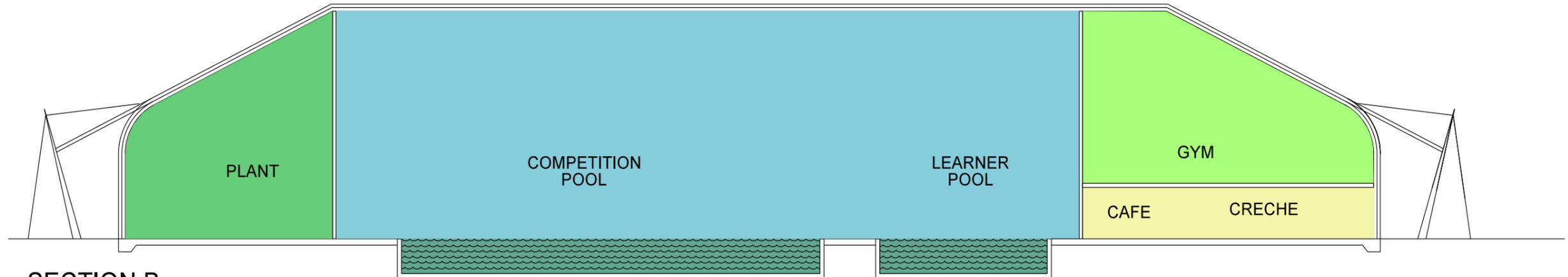




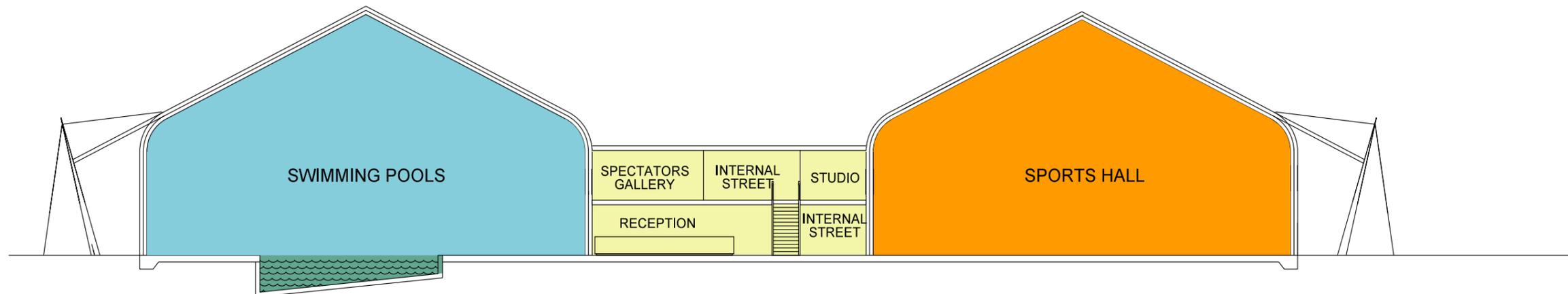
# Sections



SECTION A



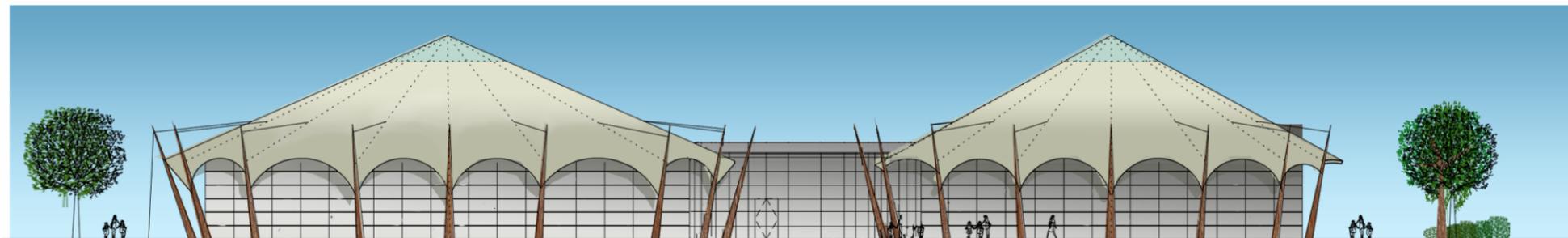
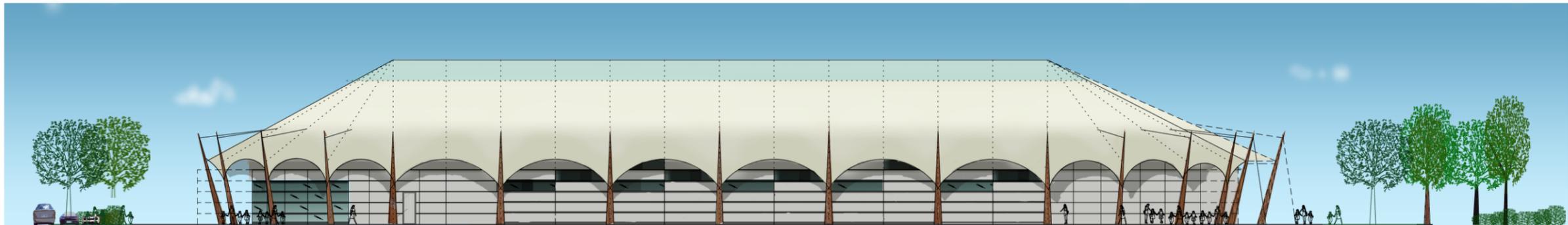
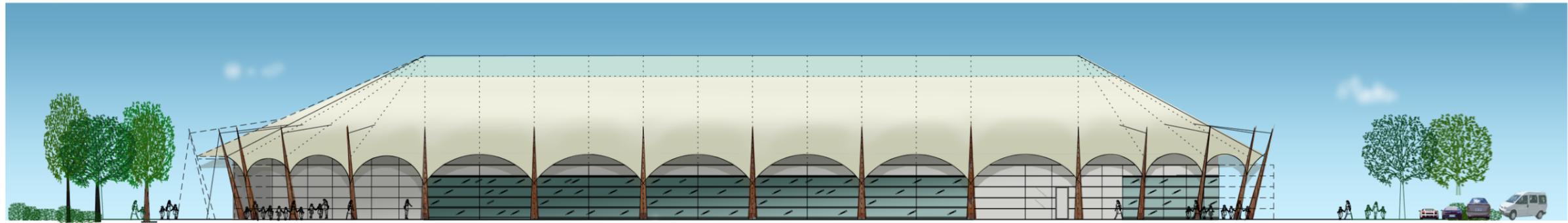
SECTION B



SECTION C



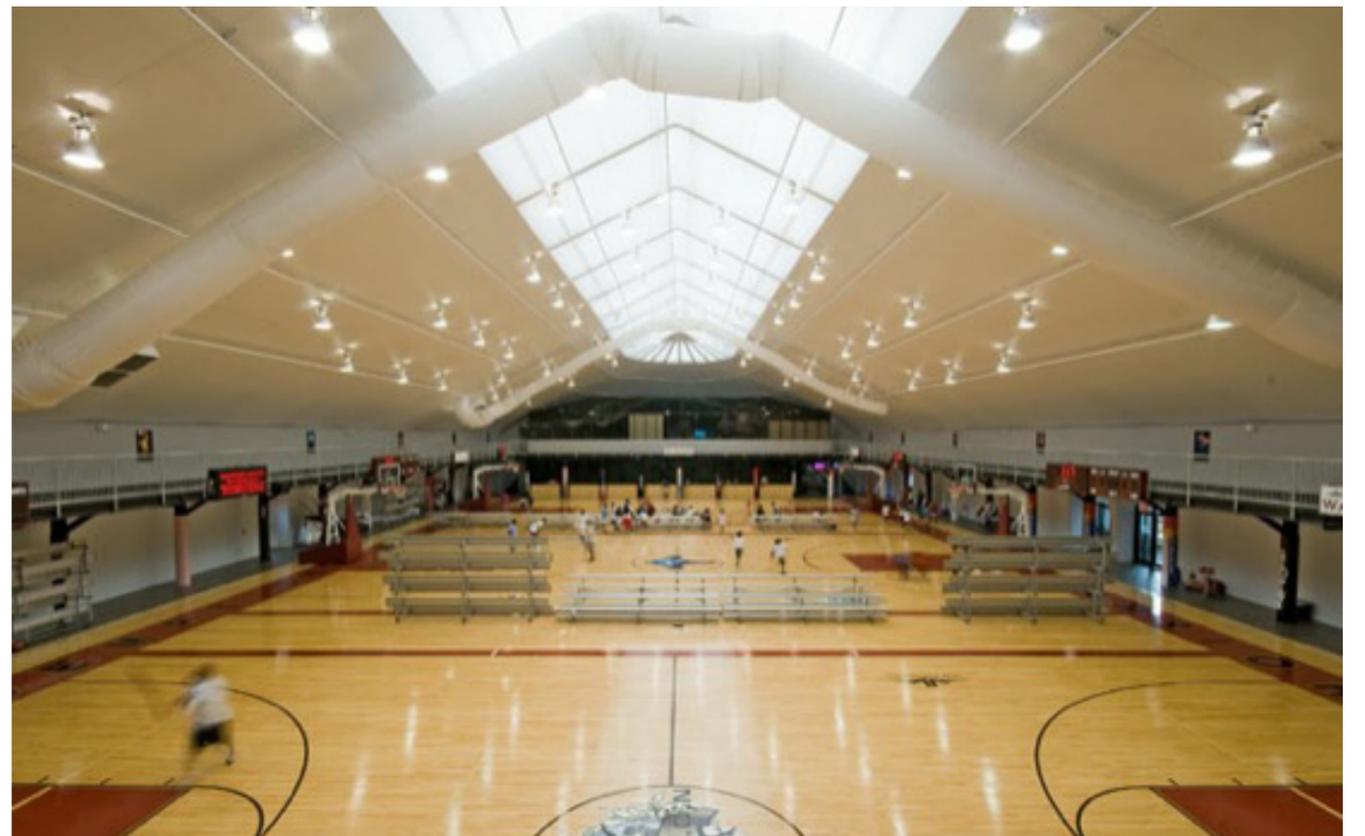
# External Elevations



CI STRUCTURES - TURNKEY LEISURE CENTRE

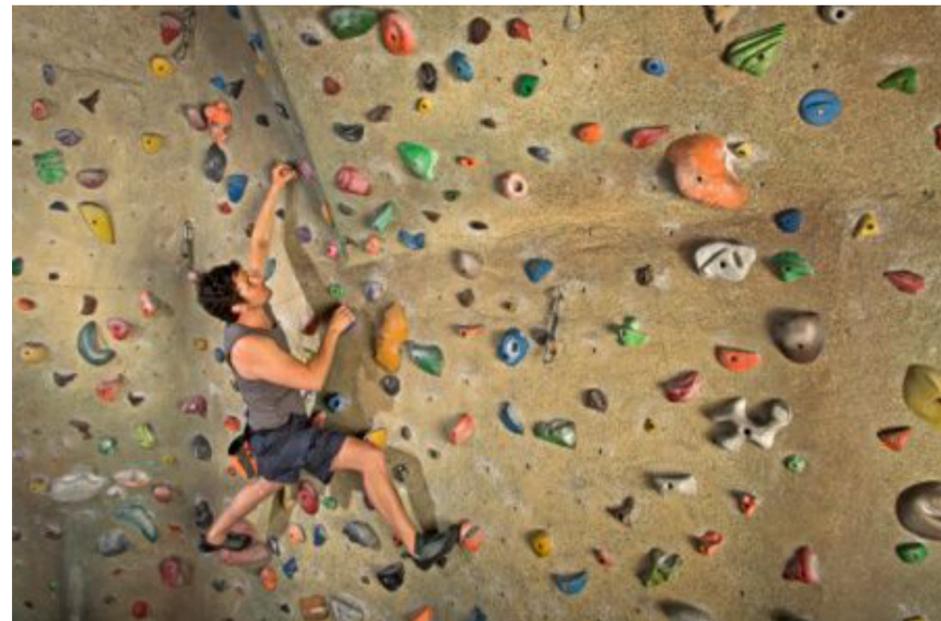


# Imagery





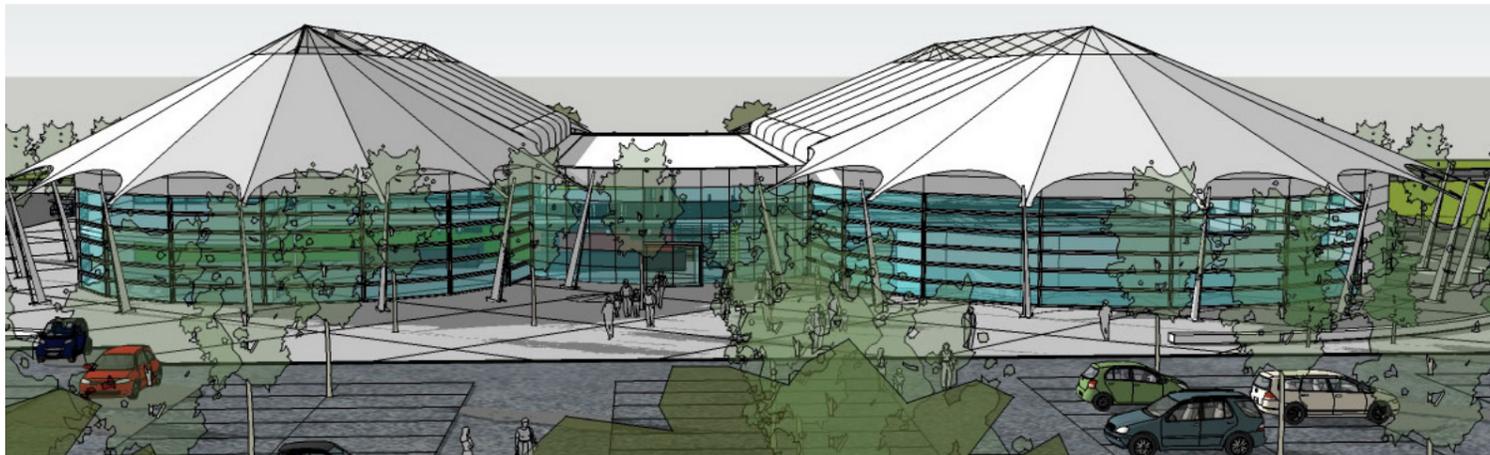
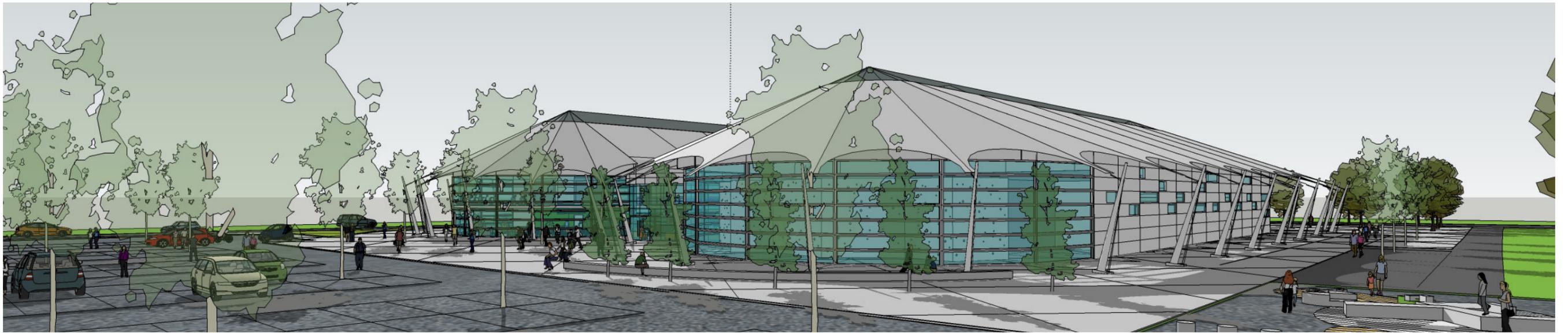
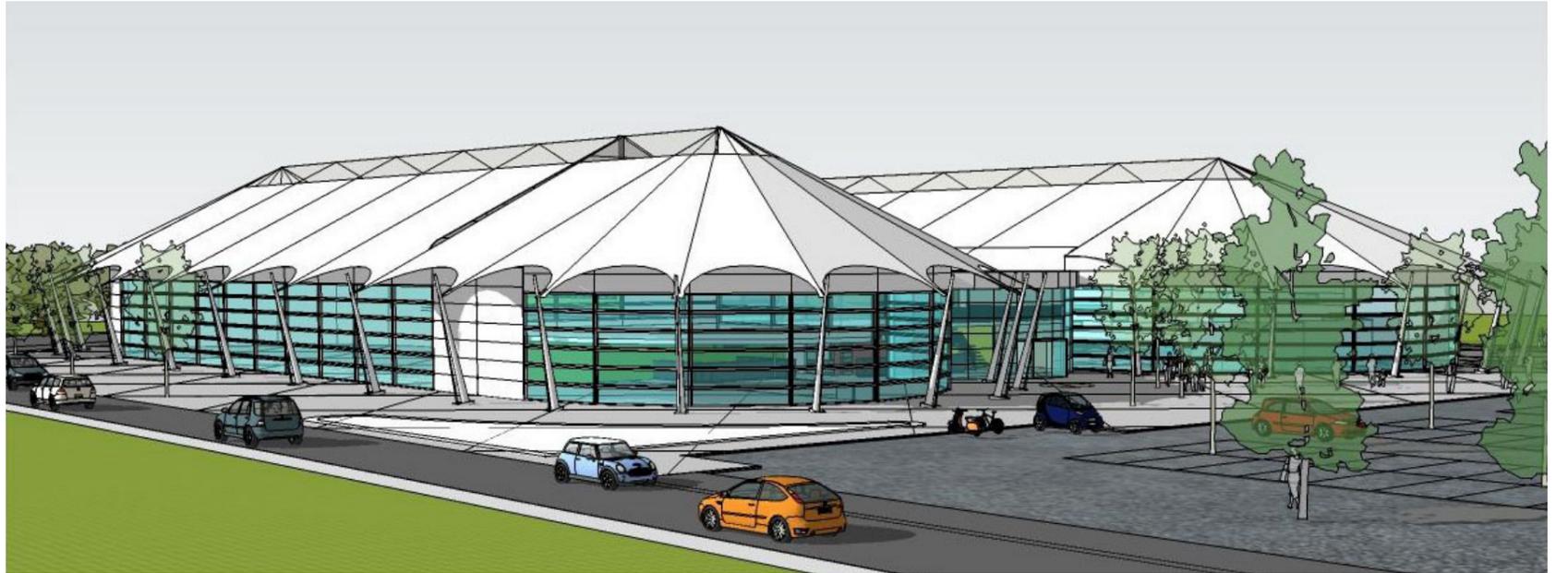
# Precedent Images



CI STRUCTURES - TURNKEY LEISURE CENTRE



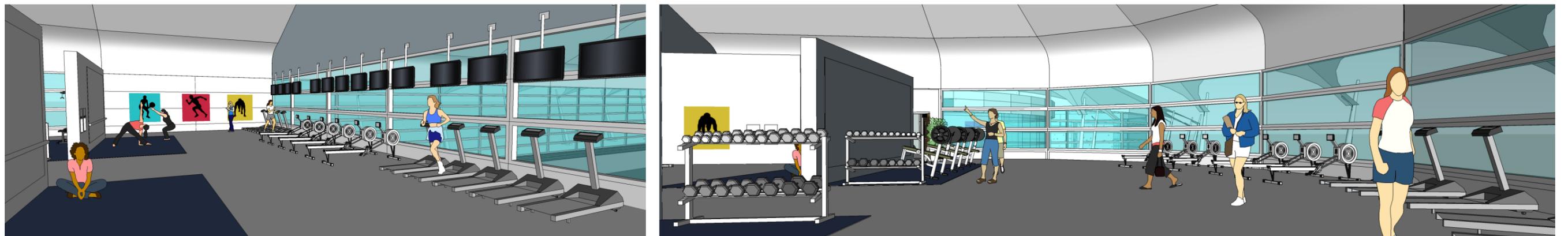
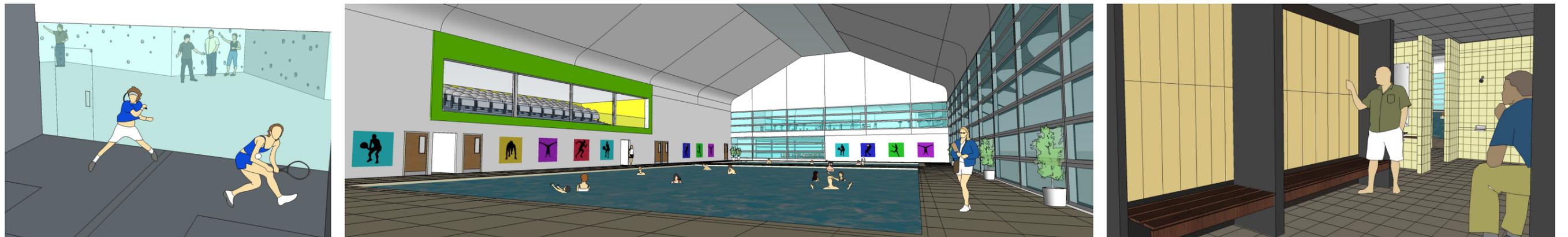
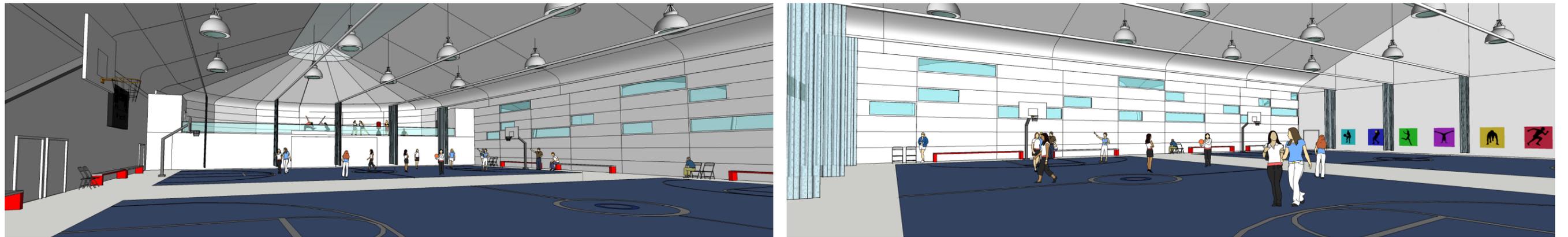
# External Images



CI STRUCTURES - TURNKEY LEISURE CENTRE



# Internal Images





# The CI Structure System



## SPRUNG INNOVATIVE BUILDING SOLUTIONS

Sprung Instant Structures is the inventor of the stressed membrane structure, an engineered, relocatable, clearspan building alternative.

The Sprung structure is a modular style, pre-fabricated, framed membrane building which is designed for both semi-permanent and permanent applications. It is a fast erect and effective alternative to conventional construction methods.

Each structure is individually engineered to meet our customer's shelter requirements and with over 185,000 sq metres of inventory in stock at any one time, Sprung is equipped to rapidly respond to their requirements on a global basis.

From basic single skin warehouses, sports arena, swimming pools, leisure and casino complexes, the durable, precision engineered structures are the solution of choice for a large and growing range of industries.

## STRUCTURAL FEATURES

- › Aluminium Substructure
- › Architectural Membrane
- › Insulated Cross Section

By constantly designing and integrating customized features and refinements, Sprung Instant Structures is well prepared to respond to specialized needs and creative demands. Sprung Instant Structures has completed a large variety of unique and architecturally demanding projects in conjunction with some of the world's finest, most inventive architects and designers.

Please take the time to navigate through our product information using the menu on the right hand side or use the structure features links above to get you started.

## STRUCTURE RELIABILITY

Sprung structures endure. By design the structure sheds snow, withstands extremely high winds and shows a remarkable resistance to earthquakes. Through invention, design and continued innovation - Sprung reliability is proven.

A highly versatile alternative to steel, the rustproof extruded aluminum substructure of a Sprung structure provides a cost-effective, lightweight and easy to assemble solution. Aluminum offers exceptional adaptability and life expectancy.

The Sprung structure showcases the strength, lightness, beauty and simplicity of aluminum as a building material. A unique combination of properties makes aluminum one of the most versatile engineering and construction materials in the world.

With aluminum, virtually any shape can be extruded. This allows for fitted and bolted connection points rather than welded connections frequently seen on steel.

With a specialized high strength aluminum alloy, our substructure has an unlimited lifespan. Sprung structures are engineered to meet or exceed the requirements of most building codes and standards worldwide.

## SHIPPING

Aluminum's exceptional strength-to-weight ratio equates to weight savings of approximately 66% over equivalent steel structures. This means substantially more product can be loaded on a flat bed truck, in a shipping container and on an aircraft.

## LIFE EXPECTANCY

Aluminum has an indefinite life expectancy and actually increases in strength with age. Aluminum does not suffer from the corrosion inherent in steel structures.

## FLEXIBILITY OF DESIGN

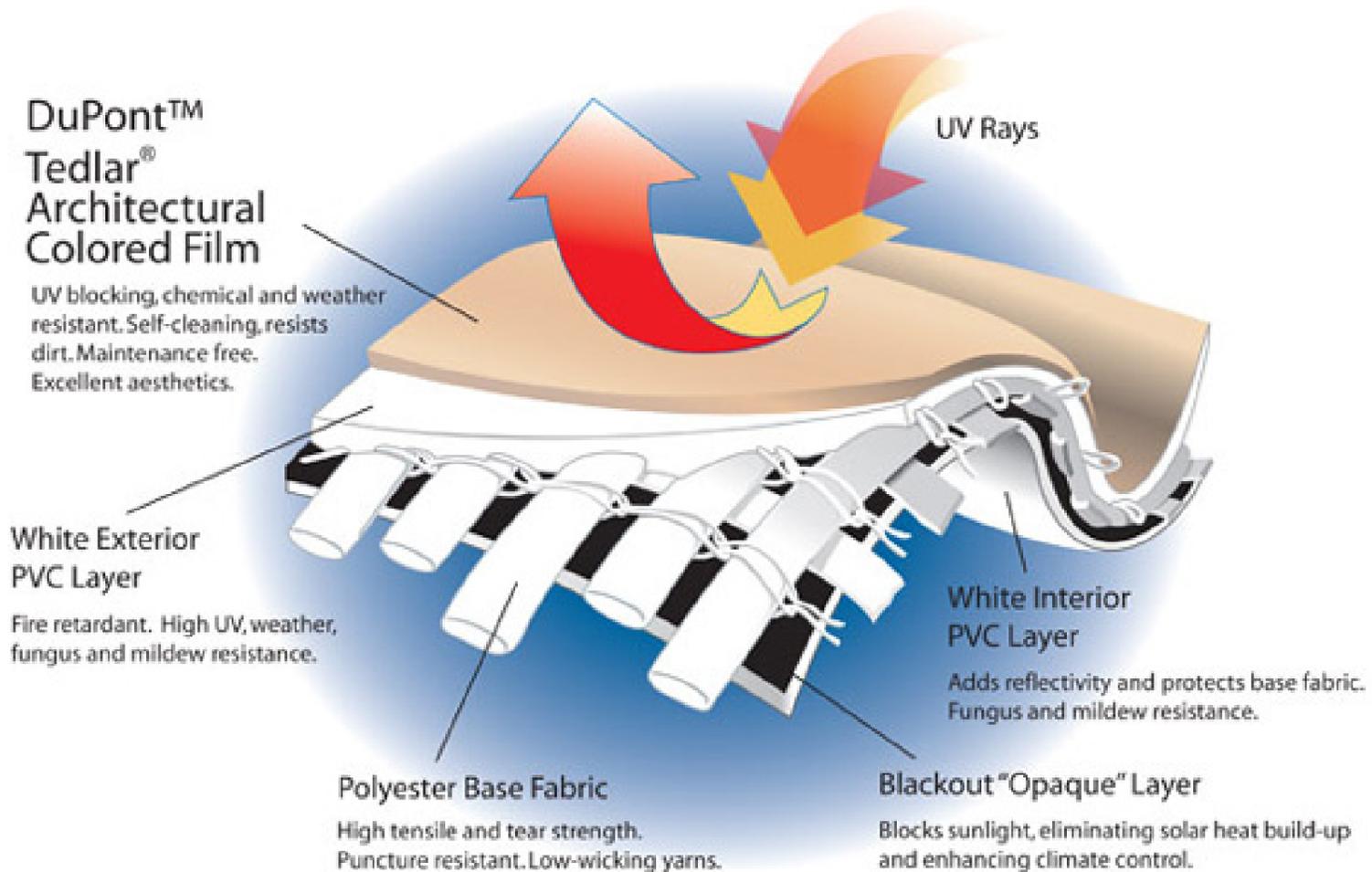
There are no limits to the shapes and sizes possible with aluminum extrusions allowing for fitted and bolted connections.

## THE ENVIRONMENTAL CHOICE

Aluminum is 100% recyclable with no loss of quality.



# The CI Structure System



## Cladding

We see the whole roof area being covered with the architectural membrane material with travelling beyond the building line to create a canopy around the building and held in tension using posts - see elevations. - this gives the building a greater presence and character with less of a temporary feel which the present system gives.

## ARCHITECTURAL MEMBRANE

Customers may select from an extensive variety of membrane colors to suit the structure's application, physical location, and to complement corporate branding. Custom color requirements can be met through special orders. The clean, bright, highly tensioned finish of our structure provides an ideal display area for graphic treatments.

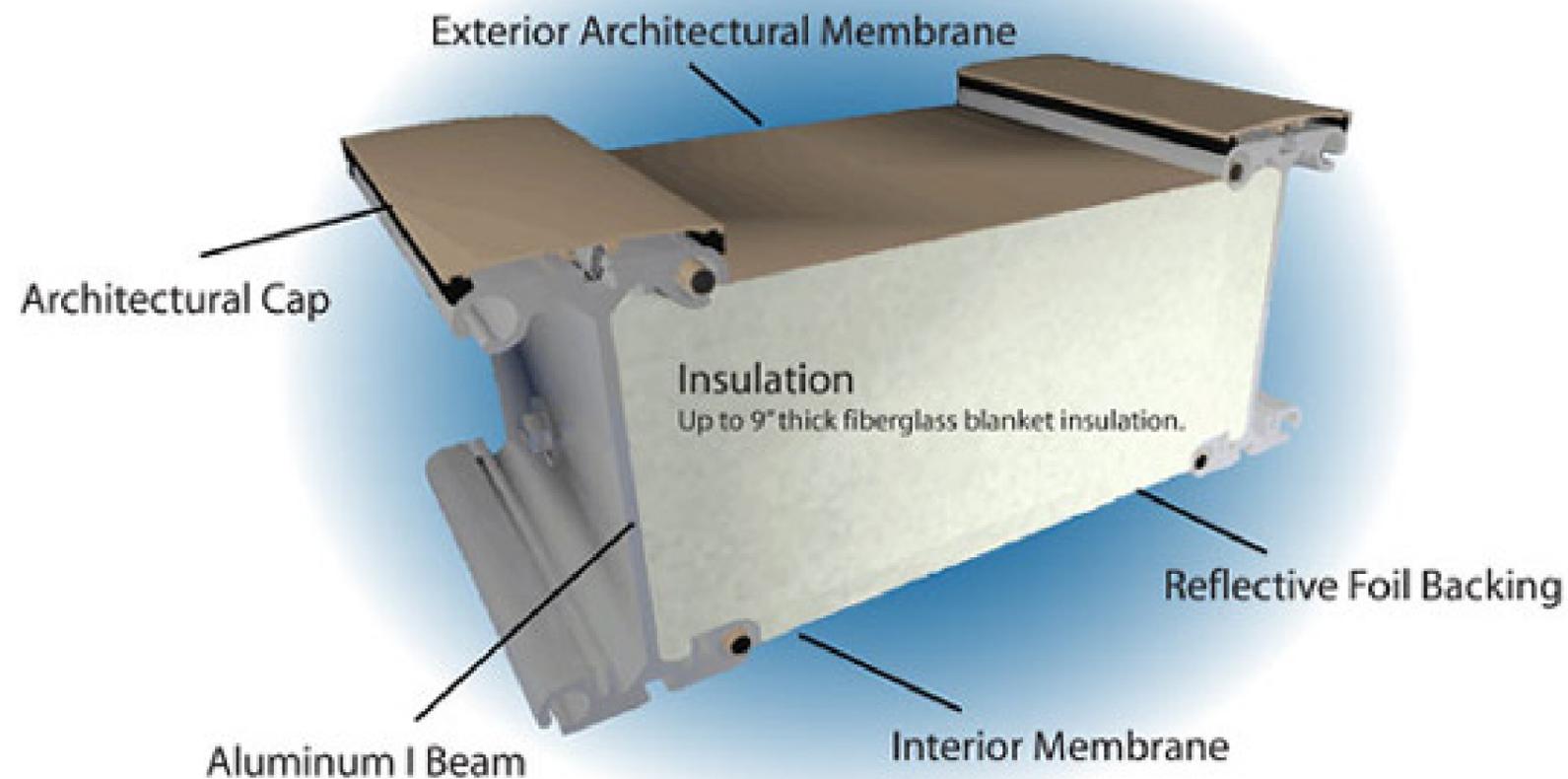
## FIRE CERTIFICATION

The architectural membranes are the result of extensive research, development and on-site testing. They possess exceptional fire retardant and UV resistance capabilities. The Seaman 9319 premium membrane is BS 7157 certified and the insulated walls/ceilings achieve an "AA" rating for BS 476 Part III.

The membranes pass the following fire tests as outlined in North American building codes; California State Fire Marshall, UBC 31-1, NFPA 701, ASTM-E-84 and the Canadian standard ULC-S\_109 and ULC-S-102.2-03.

# The CI Structure System

## Insulated Cross Section



### Insulated Cross Section

We continually research and test to determine the best available products for our structures. An important component of our structures is the optional insulation package.

#### THE BENEFITS OF INSULATION

In addition to providing comfort, reducing the cost of climate control and absorbing sound for better acoustics - properly insulating a structure helps reduce energy costs and makes financial sense even for relatively short-term applications.

Our comprehensive insulation package includes vapor barriers and a tensioned, attractively finished interior liner in the color of your choice. The liner eliminates the need for additional interior build-out for aesthetic reasons. The finished product possesses outstanding acoustical characteristics.

#### FORMALDEHYDE FREE FIBREGLASS BLANKET

We use Johns Manville Formaldehyde Free fiberglass blanket. It is the only such formaldehyde free product available in the world. With virtually zero formaldehyde in this insulation, we reliably insulate with a thin foil backed blanket of this safe, fiberglass insulation. We agree with Johns Manville: "It is smart. It is better. It is the right thing to do."

Aluminum foil backing adds to the overall efficiency of the insulation package by assisting with the containment of radiant energy.

# Pre-fabricated Modular Construction



The use of the CI structures system can be further complimented by other pre-fabrication systems.

Modular, or volumetric, building technology is the ideal option for the project/s and can benefit the project with tighter budget, timeline, and quality controls, along with minimal on-site disturbance and reduction in onsite construction time, which would benefit from the advantages of a prefabricated design and build system.

The design has allowed for the potential use of prefabricated units within the proposed scheme for the central core area, which can be fabricated, shipped / transported complete with decoration scheme and all necessary fittings, including heating, lighting, power and IT cabling, ready to connect to the main utilities .



# External Wall Cladding



## Kingspan System

We have carried out research on the cladding systems from Kingspan which will give the design a larger palette of cladding material which will obviously aid with planning permissions in terms of material treatment of the building In relation to a site context. - see info attached.

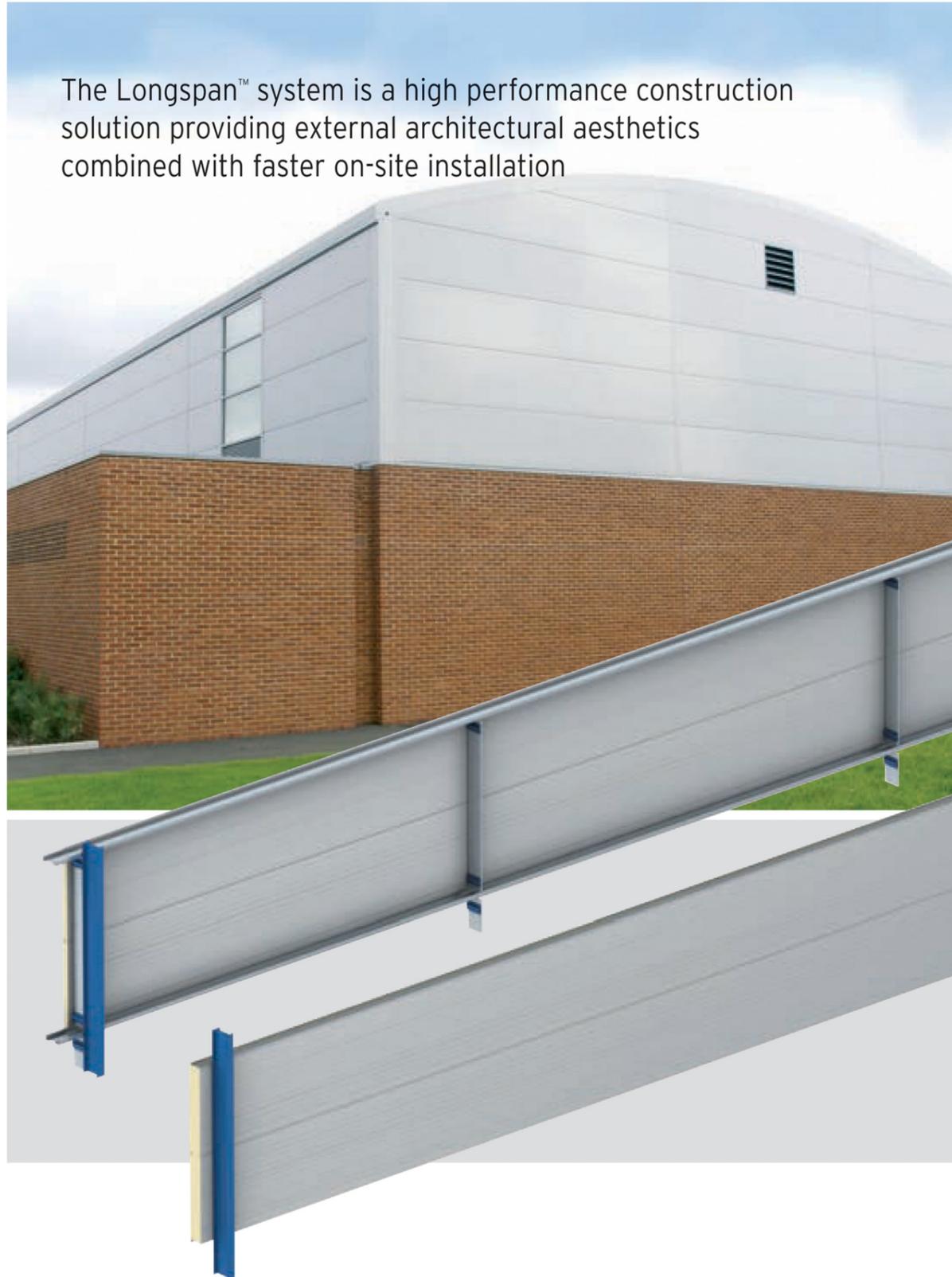
Areas where transparent cladding would enhance the character of the building in terms of both animation and advertising its uses and facilities would be the climbing wall , café , studio's and swimming pool areas - this could incorporate the use of glass of potentially the use of the Kingspan Wall Lite system which also offers many different colours- see info attached.

There is also potential to have openable areas of the cladding around the swimming pool area for hotter summer months to allow for sunbathing and potential other recreational facilities - see images attached.



# Kingspan Cladding

The Longspan™ system is a high performance construction solution providing external architectural aesthetics combined with faster on-site installation



## Construction Details

### Vertical Joint Details

#### Option A Detail

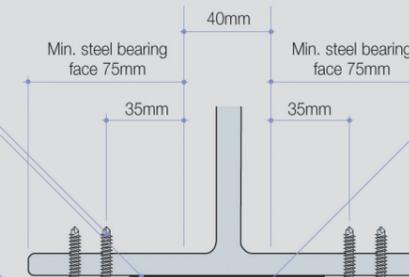
Panel fasteners at joint only. Number dependent upon design wind suction loadings.

Air seal – EPDM bubble gasket 95 x 10mm, Kingspan Ref: VJ2 Supplied in 25m rolls

AWP joint filler and gun-grade sealant

4mm diameter butyl rubber sealant (site applied)

Option A top hat (roll formed) 30mm deep with 100mm sealed butt straps. Supplied in max. 6000mm lengths



PIR board insulation with fire rated canister insulation to fill any gaps if required to maintain continuity of insulation

Air seal – gun-grade sealant to male joint

KS1000 LS Longspan™ horizontally laid

Snap on cover flashing. Maximum 6000mm lengths

### Wall & Façade Systems

KS600, 900 & 1000 Optimo™	KS600, 900 & 1000 MR Micro-Rib	KS600, 900 & 1000 EB Euro-Box	KS600, 900 & 1000 FL Flat	KS600, 900 & 1000 FL-S Stucco	KS600, 900 & 1000 MM Mini-Micro
KS600, 900 & 1000 CX Convex	KS600, 900 & 1000 WV Wave	KS600, 900 & 1000 LS Longspan™	KS1000 RW Trapezoidal	KS1000 FC Box Profile	Kingspan EnergiPanel™



# Kingspan Render Panel

## Benefits

- The pre-rendered coating has a life expectancy of up to 40 years\*.
- Innovative joint gasket minimising visual impact.
- A non-gasket version is available to emphasize the joint.
- Suitable for vertical or horizontal application.
- Factory applied render creating consistency of colour, texture and flatness over the whole elevation.
- The rendered texture is also available on KS1000 LS Longspan™, Kingspan's frame to frame insulated wall panel system.
- The need for wet trades on site is eliminated and therefore removes the risk of splashing over other finishes.
- Less vulnerable to weather interruptions and associated variations in finish than traditional wet applied render.
- Design flexibility - easily integrates with other Kingspan insulated panel systems.
- Single point responsibility - one contractor installing the system.
- Durability / weather testing to DIN 5021 & BS EN ISO 9227 salt spray and DIN 52104 for Freeze/Thaw.
- Clear, simple pricing structure providing a cost effective solution.
- Property & Business Protection - Loss Prevention Certification Board (LPCB) LPS 1181 certified insurer approved **FIREsafe** systems deliver certainty of performance and insurability.
- **ECOsafE**, environmentally sustainable PIR insulation core, low GWP (Global Warming Potential) and non-deleterious.
- Available with the Kingspan Total Panel Guarantee, offering up to 25 years thermal and structural performance guarantee.
- Simple detailing to maximise air leakage performance.
- Full installation training and technical support available.
- System fully tested to the Centre for Window and Cladding Technology (CWCT) standards.
- Easily integrates with other elements such as doors, apertures, brick, stonework and glazing.
- **FIBREfree** - No threat of loose fibres into internal environment.

\*NB - Coating will require repainting every ten years in order to comply with guarantee.



## Product Data

### Application

KS1000 RP is pre-rendered insulated wall panel, secret fixed system which can be laid horizontally and vertically. It is suitable for all building applications except where there are low temperature controlled environments.

Product Reference	Application Description
KS600/900/1000 RP	Kingspan Render Panel, pre-rendered insulated panel with Loss Prevention Certification Board (LPCB) approval for wall applications.

### Dimensions & Weight



Core Thickness (mm)	45	60	70	80	100
Weight kg/m <sup>2</sup> *	13.5	14.1	14.5	14.9	15.7

\* Weight indicated is for the panel only and not the completed system.

### Product Tolerances

Cut to Length (mm)	-5	+5
Cover Width (mm)	-2	+2
Thickness (mm)	-2	+2
End Square (mm)	-3	+3
Flatness per metre (mm)	-2	+2

### Materials

#### Substrate

Standard external and internal sheets are hot dipped S220GD + ZA zinc/aluminium coated metal to BS EN 10326: 2004 (Continuously hot-dip coated strip and sheet of structural steels. Technical delivery conditions).

#### Coatings - External Weather Sheet

KS1000 RP external side coating consists of up to 3mm thick 100% acrylic polymer with stucco render finish (200 micron high performance plastisol coating). Standard colours are shown on page 3. Reverse side of sheet coated with a light grey polyester coating.

### Profiles Available

KS1000 RP insulated panels are available in Kingspan's AWP profiles. Further information is available from the Kingspan Marketing Department.

## Colour Range





# Kingspan Thermabrick



## Introduction

Kingspan Thermabrick™ is a unique system that combines all the benefits of insulated panel construction, with the aesthetics of a brick façade.

In partnership with Acheson & Glover, using the mortarless brick system - Novabrick, Kingspan has produced and is the sole supplier of the Kingspan Thermabrick™ complete wall & façade system.

The system offers the ideal solution for all projects such as apartments, offices, retail, leisure, education and healthcare and is suitable for both refurbishment and new build projects.

## Benefits

### Complete Wall & Façade System

The Kingspan Thermabrick™ complete wall & façade system provides a strong, aesthetically pleasing finish with regulation compliant insulation built-in. Benefits include:

- Design flexibility - all the Kingspan Complete Wall & Façade Systems can be easily integrated with each other.
- Fast installation, allowing other services to gain access sooner.
- Removes brick façade from the critical path.
- Overall project costs are favourable in comparison to conventional brick walls.
- Clear simple pricing structure providing a cost effective solution.
- Property & Business Protection - Loss Prevention Certification Board (LPCB) LPS 1181 certified insurer approved **FIREsafe** systems deliver certainty of performance and insurability.
- Grade EXT-B & EXT-A60, certified for 70mm and above insulation core, providing a minimum 1hr 20mins insulation and 2hr integrity.

- **ECOsafe**, environmentally sustainable PIR insulation core, low GWP (Global Warming Potential) and non-deleterious.
- Full system available with the Kingspan Total Panel Guarantee, offering up to 25 years thermal and structural performance guarantee.
- Simple detailing to maximise air leakage performance.
- Full installation training and technical support available.
- System fully tested to the Centre for Window and Cladding Technology (CWCT) standards.
- Easily integrates with other elements such as doors, apertures, stonework and glazing.
- **FIBREfree** - No threat of loose fibres into internal environment.

## Kingspan Thermabrick™ Façade\*

### Dimensions & Weight

Dimensions: Overall nominal dimensions: 200mm length x 149mm height x 65mm deep. Face nominal dimensions: 200mm length x 74mm height.

Brick weight: 2.1kg (Typically 66 bricks/m<sup>2</sup>)

### Product Tolerances

Length	-3mm	+3mm
Height	-1mm	+1mm
Depth	-1mm	+1mm
Twist	-2mm	+2mm

### Height Restrictions

The Kingspan Thermabrick™ façade can be laid up to 6.5m in height on the carrier insulated panel, this can vary with colour of brick. Please contact Kingspan **envirocare**® Technical Services for further information.

### General Characteristics

#### Brick

The bricks are made from high strength concrete.

#### Strength

The bricks have a minimum crushing strength of 25N/mm<sup>2</sup>.

#### Fire

The bricks are non-combustible.

#### Plinth Blocks & Special Bricks

The system also includes components and accessories e.g. corner blocks, starter track, window jambs and plinths.

### Plinth Blocks

### Colour Range

The Kingspan Thermabrick™ complete wall & façade system can be supplied in a range of colours providing the specifier with an exceptionally versatile way to enhance the appearance of any building.

#### Standard Colour Range\*

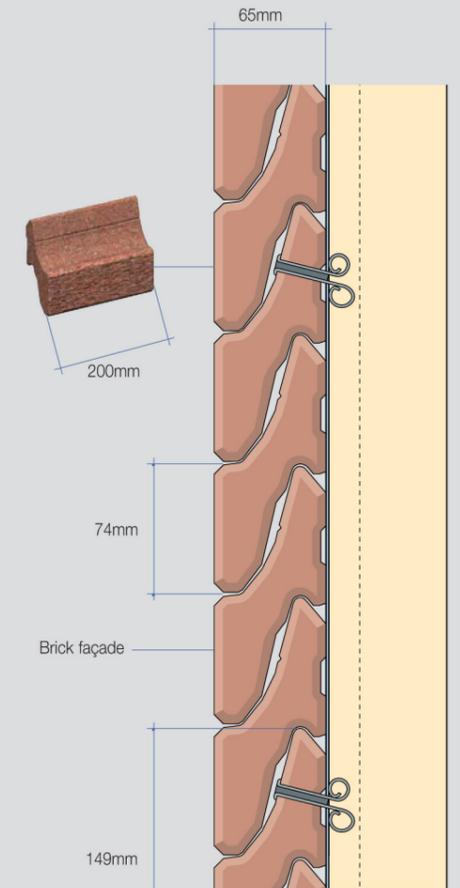


Basalt Glenvale Sahara Olde Cottage Olde Inish Olde Russett

#### Non-Standard Colour Range\*\*



Annadale Dark Brown Francesco Olde Sunset





# Kingspan Thermalite

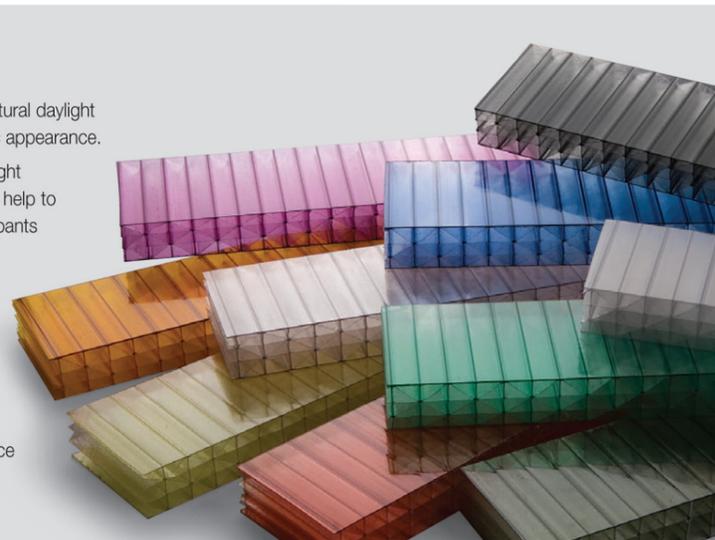


## Introduction

The Kingspan Wall-Lite is a translucent wall panel that allows natural daylight into buildings, whilst maintaining thermal efficiency and aesthetic appearance.

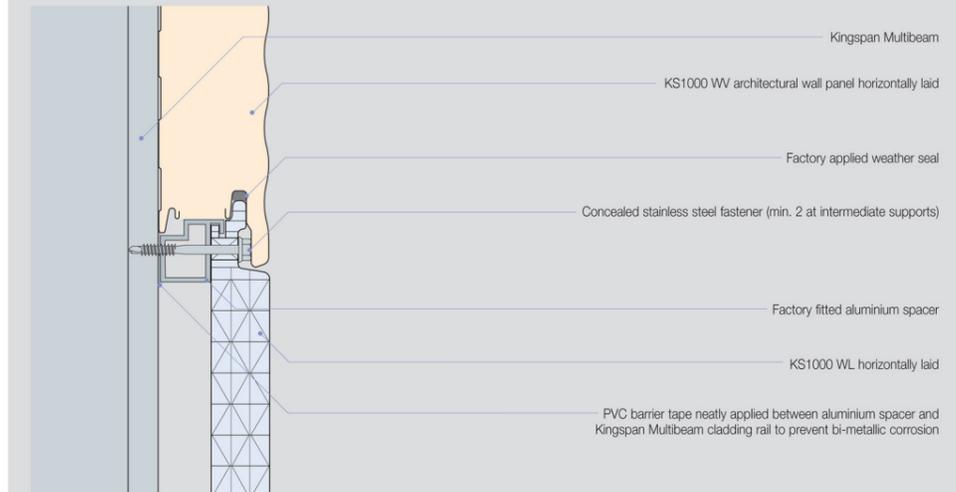
The Kingspan Wall-Lite offers excellent interior levels of natural light without compromising the performance of the building. This can help to lower both energy bills and CO<sub>2</sub> emissions, whilst allowing occupants to enjoy high levels of daylight. The system is suitable for use as an alternative to traditional vertical daylighting systems and need not restrict design options as it integrates fully with Kingspan's range of Architectural Wall Panels, Kingspan Optimo™, and Kingspan's range of Complete Wall & Façade Systems.

The Kingspan Wall-Lite is UV resistant, lightweight and offers a U-value of 1.26 W/m<sup>2</sup>K providing designers and installers choice of freedom to create energy efficient buildings of distinction.

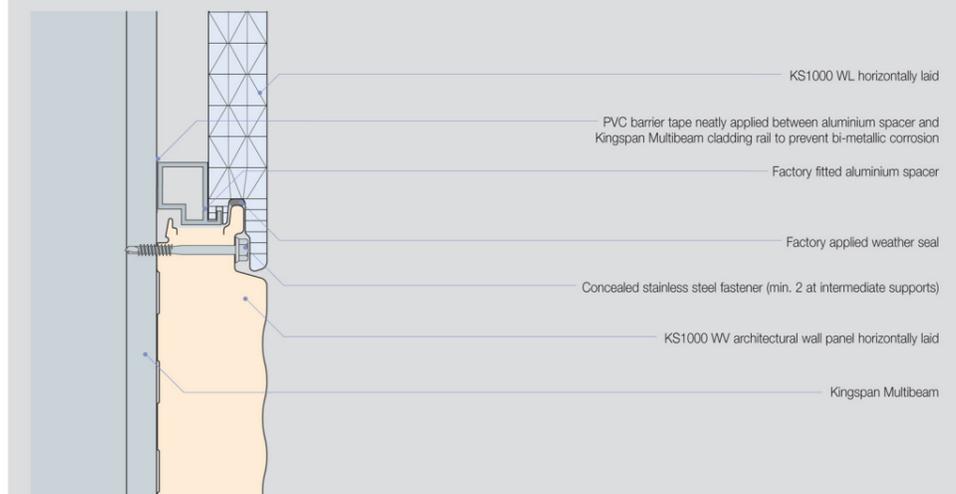


## Construction Details

### Wall-Lite Male Joint



### Wall-Lite Female Joint



## Colour Range

Kingspan Wall-Lite is available in a range of colours to give designers choice and freedom.



### Infra-red (IR) Absorbing Lights

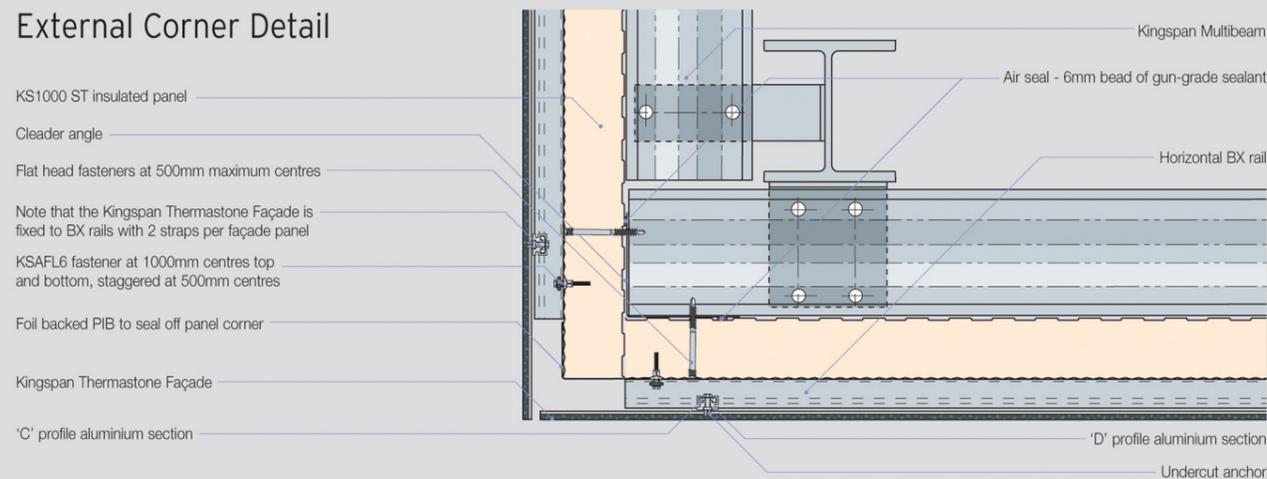
This range of Kingspan Wall-Lites absorb greater levels of infra-red light which reduces solar gain. These can allow for greater control of ambient temperature within the building providing a possible reduction in HVAC usage.



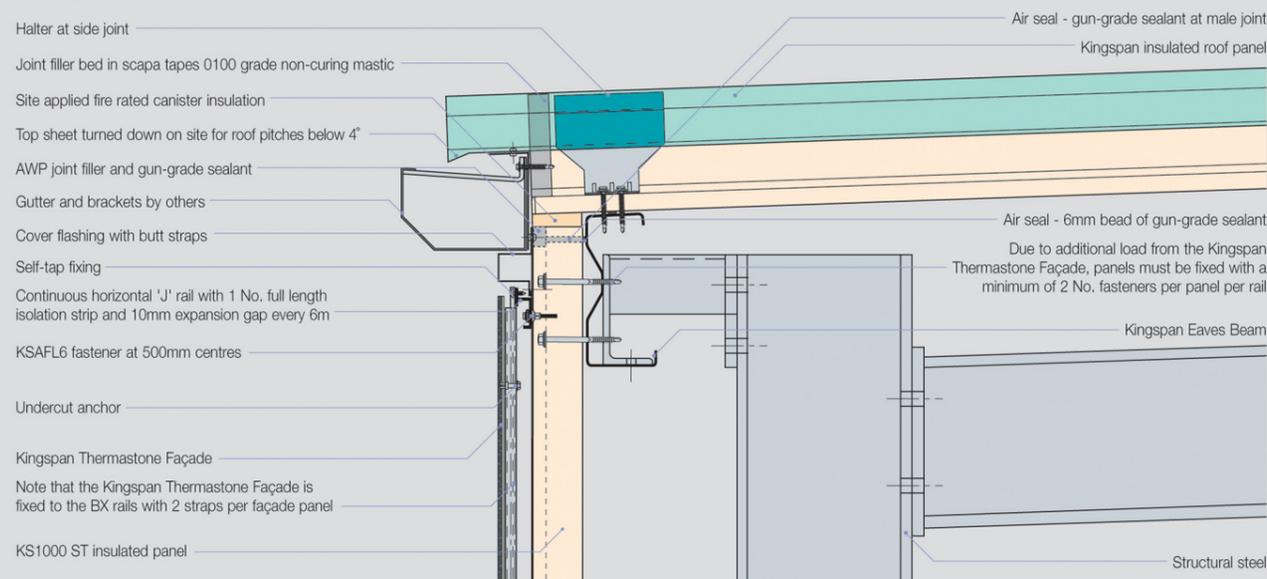
# Kingspan Thermastone

## Construction Details

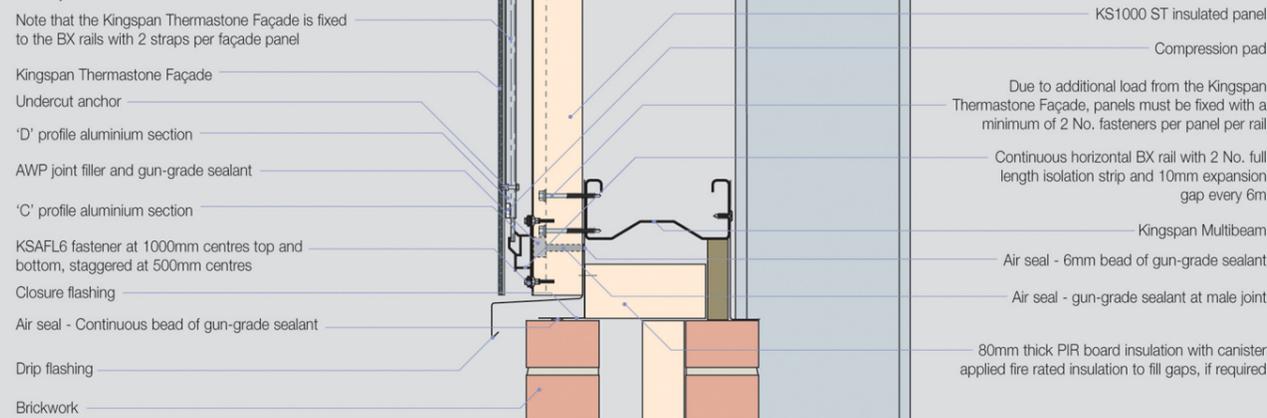
### External Corner Detail



### Eaves Detail



### Drip Detail



### Kingspan Thermastone Façade

Unlike natural stone, the Kingspan Thermastone façade requires no cutting and can be installed without traditional masonry skills. A patented manufacturing process achieves individual veining on the tiles, replicating that of quarried stone. Benefits include:

- The ceramic granite offers exceptional building protection.
- Loadings on the substrate and building exterior are reduced in comparison with naturally quarried stone.
- The ceramic granite is completely impermeable and resistant to light and UV radiation.
- The ceramic granite is highly resistant to algae growth and does not absorb dust.
- Virtually maintenance free.
- Easily used to 'dress' elevations to secure inner city planning approvals.
- Individual panels can be removed and replaced if necessary.



### Colour Range

Where a natural stone finish is required, the Kingspan Thermastone complete wall & façade system offers a range of ceramic granite cladding, which can reproduce all the beauty and variation of naturally hewn stone. The ceramic granite is completely free from fissures, flaws and other weak points which reduce the strength and versatility of quarried materials in their original state.

The Kingspan Thermastone complete wall & façade system can be supplied in a range of colours providing the specifier with an exceptionally versatile way to enhance the appearance of any building.

### Unpolished Surfaces



Toscana T03 OP   Venezia VZ6 BC   Liguria LG 2 Prel   Lazio LZ 6 Nat.   Pisa PIS 03 Nat.   Volcado Honed

### Polished Surfaces



Phlegethon PHG 05 LEV   Basilicata BS 22 LEV

### Metallic Surfaces



Heapey HP 01   Coppice CP 02

Please Note: The printed colours are as accurate as possible but are for guidance purposes only. Samples can be requested from the Kingspan Marketing Department on 01352 717251.



# Kingspan Thermatallic



## Introduction

Kingspan Thermatallic™ is a unique system that combines all the benefits of insulated panel construction, with the flatness and attractiveness of an Aluminium Composite Material (ACM) façade.

The Kingspan Thermatallic™ complete wall & façade system offers the ideal solution for all projects such as apartments, offices, retail, leisure, education and healthcare projects and is suitable for both refurbishment and new build projects.

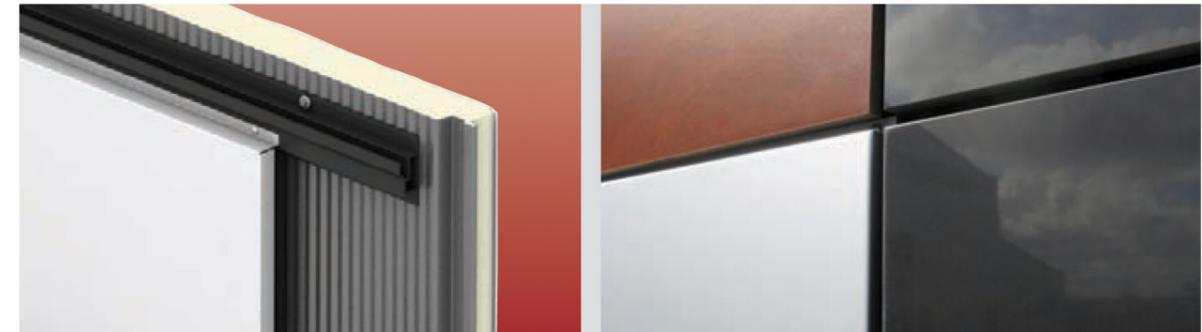
## Benefits Complete Wall & Façade System

The Kingspan Thermatallic™ complete wall & façade system provides a strong, aesthetically pleasing finish with regulation compliant insulation built-in. Benefits include:

- Design flexibility - all the Kingspan Complete Wall & Façade Systems can be easily integrated with each other.
- Single point responsibility - one contractor installing both wall and façade.
- Fast installation, allowing other services to gain access sooner.
- Removes metal façade from the critical path.
- Clear simple pricing structure providing a cost effective solution.
- Property & Business Protection - Loss Prevention Certification Board (LPCB) LPS 1181 Grade EXT-B certified insurer approved **FIREsafe** systems deliver certainty of performance and insurability.
- **ECOSafe**, environmentally sustainable PIR insulation core, low GWP (Global Warming Potential) and non-deleterious.
- Full system available with the Kingspan Total Panel Guarantee, offering up to 25 years thermal and structural performance guarantee.
- Simple detailing to maximise air leakage performance.

- Full installation training and technical support available.
- System fully tested to the Centre for Window and Cladding Technology (CWCT) standards.
- Easily integrates with other elements such as doors, apertures, brick/stonework and glazing.
- **FIBREfree** - No threat of loose fibres into internal environment.

The paper we have printed on is from 80% post-consumer waste and the remaining 20% pulp is TCF (Totally Chlorine Free). This fibre is FSC certified (see fsc.org for details). In recognition, the range has been awarded both the NAPM and Eugropa recycled marks, two of the most prestigious and recognisable recycled certificates available. The ink we have used is vegetable based, allowing the document to be recycled.



## Kingspan Thermatallic™ Façade

The ACM used to produce the metal cassettes for Kingspan Thermatallic™ is formed from two aluminium sheets which are fully bonded to a high performance polyethylene core. Benefits include:

- A high level of flatness and stability.
- Available in a range of cassette sizes and brilliant colours.
- Extremely weatherproof, impact resistant, break-proof and vibration-damping.
- Secret fix only.
- Individual panels can be removed and replaced as necessary.

## Dimensions

Maximum cassette module 3800mm length\* x 1200mm height.  
Face panel 4mm thick.

\*Dependent on colour specified, please contact Kingspan **envirocare** Technical Services for more information.

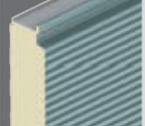
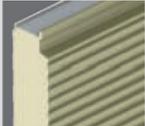
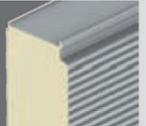
## General Characteristics

### ACM Façade

A composite material consisting of two 0.5mm aluminium cover sheets of Peraluman alloy - 100 (AlMg1), EN AW - 5005 A according to BS EN 485-2, (Aluminium and aluminium alloys. Sheet, strip and plate. Mechanical properties), fully bonded to a 3mm polyethylene core.



## Wall & Façade Systems

KS600, 900 & 1000 Optimo™	KS600, 900 & 1000 MR Micro-Rib	KS600, 900 & 1000 EB Euro-Box	KS600, 900 & 1000 FL Flat	KS600, 900 & 1000 FL-S Stucco	KS600, 900 & 1000 MM Mini-Micro
					
KS600, 900 & 1000 CX Convex	KS600, 900 & 1000 WV Wave	KS600, 900 & 1000 LS Longspan™	KS1000 RW Trapezoidal	KS1000 FC Box Profile	Kingspan EnergiPanel™
					



# Kingspan FC Box Profile

## Introduction

Kingspan KS1000 FC is an insulated roof and wall system which has a recurring box sectional profile.

KS1000 FC provides a greater choice for designers and property owners who require the aesthetics of a regular repeating profile. The system can be laid horizontally or vertically on walls and can be used where planning constraints require the profile to match existing adjacent buildings.

KS1000 FC can also be used in roofing applications and compliments the existing range of Kingspan roof and wall profiles, working particularly well with the popular KS1000 RW trapezoidal panel system and Kingspan EnergiPanel™. The simple integration alongside doors, windows, glazing, louvers and traditional construction materials makes it ideal for both new build and refurbishment projects.

KS1000 FC is a single component, single fix insulated roof and wall system which provides simple and fast site installation.

## System Benefits

- Property & Business Protection - Loss Prevention Certification Board (LPCB) LPS 1181 certified insurer approved **FIREsafe** systems deliver certainty of performance and insurability.
- Fully complies with Part L2 (England & Wales) Building Regulations, Part F2 (Northern Ireland), Part L (Republic of Ireland) and Section 6 (Scotland) Technical Handbooks.
- High performance thermal insulation built-in.
- **FIBREfree** - No threat of loose fibres into internal environment.
- Lifetime insulation continuity, thermal performance and airtightness (5m<sup>3</sup>/hr/m<sup>2</sup>) certainty.
- Suitable for vertical or horizontal application and available in lengths of up to 29.3 metres.
- Can be installed as a roof or wall application and integrates seamlessly with Kingspan EnergiPanel™.
- Simple integration with doors, windows, glazing, louvers and traditional construction materials.
- Environmentally sustainable system - zero ODP and non-deleterious.
- Guaranteed for up to 25 years for thermal and structural performance through Kingspan Total Panel Guarantee.
- Quality approved to ISO 9001: 2000.
- Kingspan's manufacturing plants are ISO 14001 (Environmentally) and ISO 18001 (Health & Safety) accredited.

## Product Data

### Application

Kingspan KS1000 FC is a through fixed insulated roof and wall system which can be used for roof applications with roof pitches of 4° or more and wall applications, laid vertically or horizontally.

Product Reference	Application Description
KS1000 FC	KS1000 FC Box Profile insulated panel with Loss Prevention Certification Board (LPCB) approval for roof and wall applications.

### Dimensions & Weight



Dimension A - core thickness nominal (mm)	34	46	50	68	80	100
Dimension B - overall dimension (mm)	72	84	88	106	118	138
Weight kg/m <sup>2</sup> 0.5/0.4 steel	10.0	10.5	10.9	11.5	12.0	12.8
Weight kg/m <sup>2</sup> 0.63/0.4 steel	11.5	12.0	12.2	12.9	13.4	14.2

### Product Tolerances

Cut to Length	-5mm	+5mm
Linear Sheet Length	-5mm	+5mm
Cover Width	-2mm	+2mm
Thickness	-2mm	+2mm

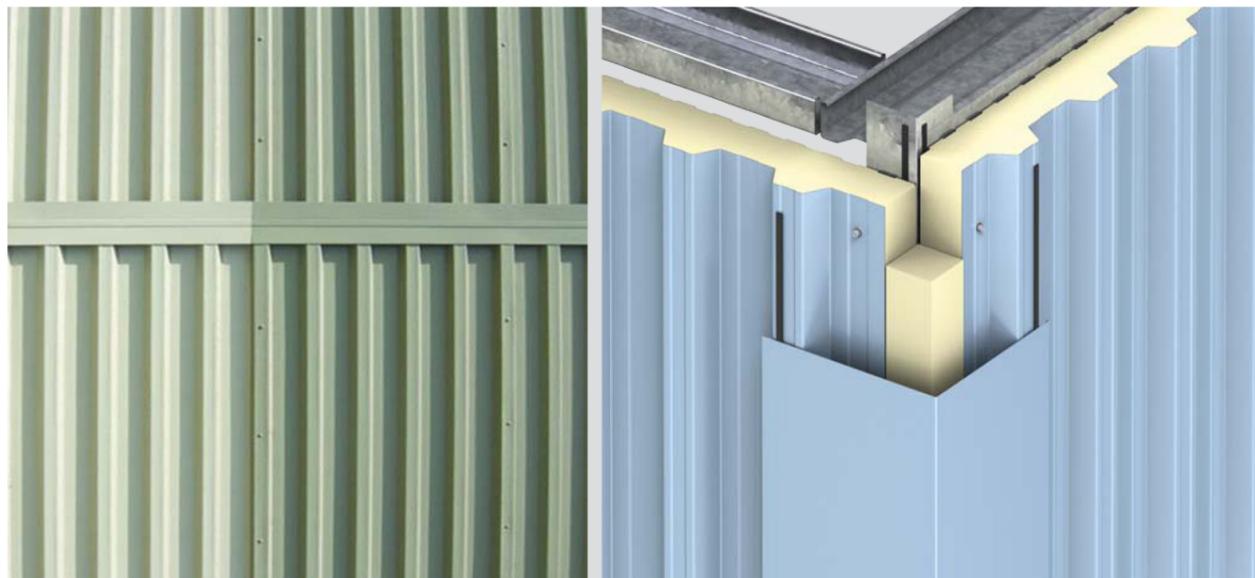
### Material - Steel

**Substrate**

- S220GD+ZA hot-dip zinc alloy coated metal to BS EN10214: 1992. Standard external sheet thickness 0.5mm, 0.63mm with horizontally laid Kingspan Spectrum™. Standard internal sheet thickness 0.4mm.

### Wall & Façade Systems

KS600, 900 & 1000 Optimo™	KS600, 900 & 1000 MR Micro-Rib	KS600, 900 & 1000 EB Euro-Box	KS600, 900 & 1000 FL Flat	KS600, 900 & 1000 FL-S Stucco	KS600, 900 & 1000 MM Mini-Micro	KS600, 900 & 1000 CX Convex	KS600, 900 & 1000 WV Wave
KS600, 900 & 1000 PL Plank	KS1000 TL Tramlite	KS1000 CW CurveWall	KS1000 LV Louvre	KS600, 900 & 1000 LS Longspan™	KS1000/2000 RW Trapezoidal	KS1000 FC Box Profile	Kingspan EnergiPanel™
Kingspan Thermastone	Kingspan WoodTherm®	Kingspan Thematite	Kingspan Thermabrick™	Kingspan Thematallite™	Kingspan Render Panel	Kingspan Wall-Lite	KS1000 DR Trapezoidal





# Kingspan Longspan

## Introduction

The KS1000 LS Longspan™ System is a cost effective architectural wall system which provides quicker project completion, simpler installation and guaranteed performance.

KS1000 LS Longspan™ wall panels can span up to 8.2 metres from support to support, providing enhanced aesthetics and reducing the need for secondary steelwork.

Standard Kingspan Architectural Panel



KS600/900/1000 LS Longspan™ Panel



## Performance Advantages

- Property & Business Protection - Loss Prevention Certification Board (LPCB) LPS 1181 certified insurer approved **FIREsafe** systems deliver certainty of performance and insurability.
- Complies with HSA/HSE and CDM safety requirements.
- Fully complies with Part L2 (England & Wales) Building Regulations and Section 6 (Scotland) Technical Handbooks.
- Lifetime insulation continuity, thermal performance and airtightness (5m<sup>3</sup>/hr/m<sup>2</sup>) certainty.
- Frame to frame spanning capability of up to 8.2 metres.
- Available in cover widths of 600, 900 and 1000mm.
- Six external architectural profiles available
- Simple integration with doors, windows, glazing, louvres and traditional construction materials.
- Suitable for horizontal or vertical application.
- Accelerated build speed through pre-engineered, single component, single-fix installation, that can reduce site times by up to 50%.
- Environmentally sustainable system - zero ODP and non-deleterious.
- Guaranteed for up to 25 years for thermal and structural performance through Kingspan TOTAL Guarantee.
- Quality approved to ISO 9001: 2000.
- Kingspan's manufacturing plants are ISO 14001 (Environmentally) and ISO 18001 (Health & Safety) accredited.



Approved to LPS 1181  
Certificate No. 186a & 260a

## Construction Details

### Vertical Joint Details

#### Option A Detail

Panel fasteners at joint only. Number dependent upon design wind suction loadings.

Air seal – EPDM bubble gasket 95 x 10mm, Kingspan Ref: VJ2 Supplied in 25m rolls

AWP joint filler and gun-grade sealant

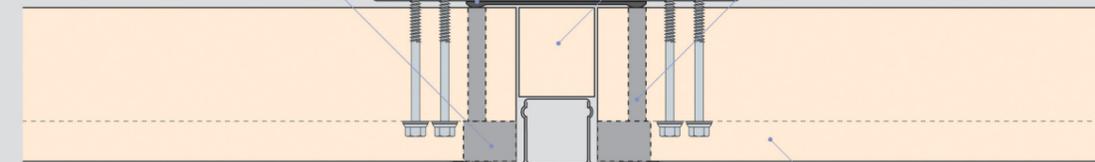
4mm diameter butyl rubber sealant (site applied)

Option A top hat (roll formed) 30mm deep with 100mm sealed butt straps. Supplied in max. 6000mm lengths



PIR board insulation with fire rated canister insulation to fill any gaps if required to maintain continuity of insulation

Air seal – gun-grade sealant to male joint



KS1000 LS Longspan™ horizontally laid

Snap on cover flashing. Maximum 6000mm lengths

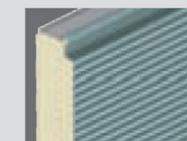


### Wall & Façade Systems

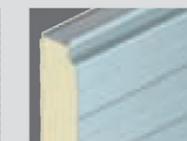
KS600, 900 & 1000 Optimo™



KS600, 900 & 1000 MR Micro-Rib



KS600, 900 & 1000 EB Euro-Box



KS600, 900 & 1000 FL Flat



KS600, 900 & 1000 FL-S Stucco



KS600, 900 & 1000 MM Mini-Micro





# Kingspan Optimo



## Optimum Refurbishment

The Kingspan KS1000 Optimo Insulated Wall System is ideal for new build or refurbishment projects and provides architects with the creative freedom to design eye-catching and contemporary buildings, safe in the knowledge that the functionality of the system provides real practical benefits.

## Optimum Integration

All the architectural options of the Optimo Wall and Facade Systems can be readily integrated with the side rail support system, traditional materials, glazing, doors, windows and other ancillary components.

## Ready for Regulation

Optimo Wall and Facade Systems are available in a range of fire engineered approved **FIREsafe** specifications - fully compliant with Building Regulations, British Standards, Loss Prevention Certification Board (LPCB) and Factory Mutual (FM) insurers approved standards.



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## Optimum Compliance

### Optimum Standards

Carefully controlled manufacturing processes, to ISO EN 9002 quality standards ensures that the Optimo Systems are produced to precise tolerances.

The Optimo Systems can be installed up to 50% faster than site assembled built-up alternatives.

The systems fully complies with the latest changes to Thermal Building Regulations Part L2 (England and Wales), Part J (Scotland) and Part L (Ireland) including low air leakage performance.



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## Optimum Options

**Optimo-A**  
A coated steel top hat and choice of flush or recessed inserts.

**Optimo-B**  
Produces a curtain wall detail, with a snap-on vertical mullion and horizontal transom.

**Optimo-C-gasket**  
Features an aluminium top hat with a rubber gasket.

**Optimo-C-insert**  
The aluminium top hat with an aluminium insert.

**Optimo-D**  
Both the vertical and horizontal joint feature push-in gaskets, producing a distinctive picture frame effect.



Each product combination features distinctive vertical and horizontal joint arrangements – KS1000 Optimo A, B, C and D



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CI STRUCTURES - TURNKEY LEISURE CENTRE



# Area Schedule

<b>NIFA Ground Floor</b>	
Reception	130
Lower internal street	182
Dry female change area	90
Dry male change area	90
Family pool change area	110
Female pool change area	106
Male pool change area	106
Sauna and steam	34
Back of house & store behind reception	40
Climbing Wall	480
Squash Courts	195
Main Sports Hall	1290
Store & Plant ( sports hall)	540
Café	225
Café Kitchen	55
Café Wc's	44
Kid's Play Area & Creche	115
First Aid	15
Escape stair	12
Main Pool Area	1116
Plant for Pool	230
	<b>5205 sqm</b>

<b>NIFA First Floor</b>	
Studio 1	72
Studio 2	36
Studio 3	60
Martial Arts Area	545
Gym	450
Reception	30
Upper internal street	153
Treatment Room 1	10
Treatment Room 2	10
Treatment Room 3	10
Spectator Gallery	144
Circulation	22
Female Changerooms	110
Male Changerooms	110
BOH and Staff facilities	64
	<b>1826sqm</b>

<b>GIFA (m sq)</b>	<b>7031 sqm</b>
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# Pricing & Contact Details

## PRICING

CI Structures Ltd is offering a cost effective, fast track, turnkey solution for sports, leisure and community facilities.

**The turnkey price for a complete leisure centre is £1385 per square metre.**

This price is based on the drawings included in this brochure showing a 7000 square metre facility.

## CONTACT DETAILS

For further information or to discuss the details of this offer please contact CI Structures Ltd:

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