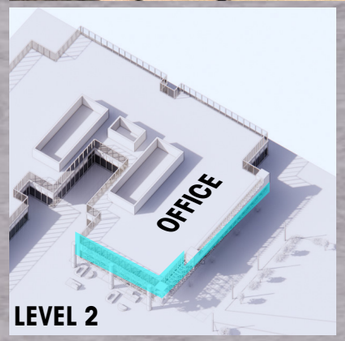
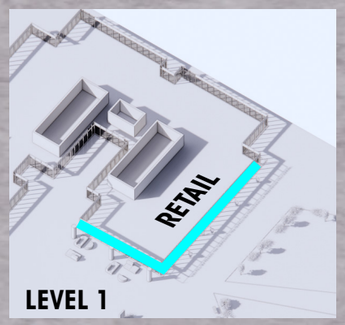
Adaptive Modular Envelope

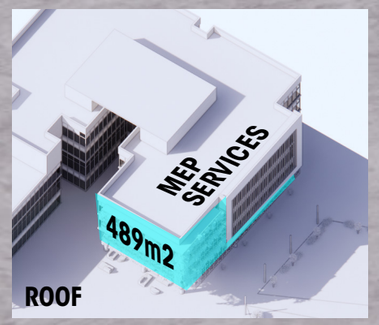
Natspec Competition,2022

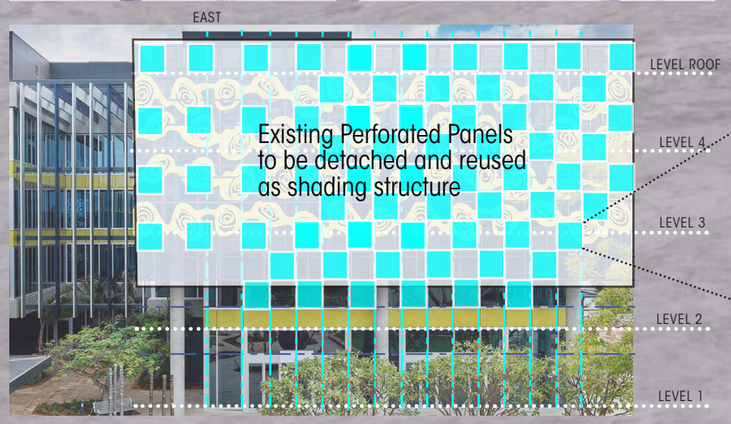
ANJALI (20972286)
BONY (20478506)
BRIGHT (17442602)

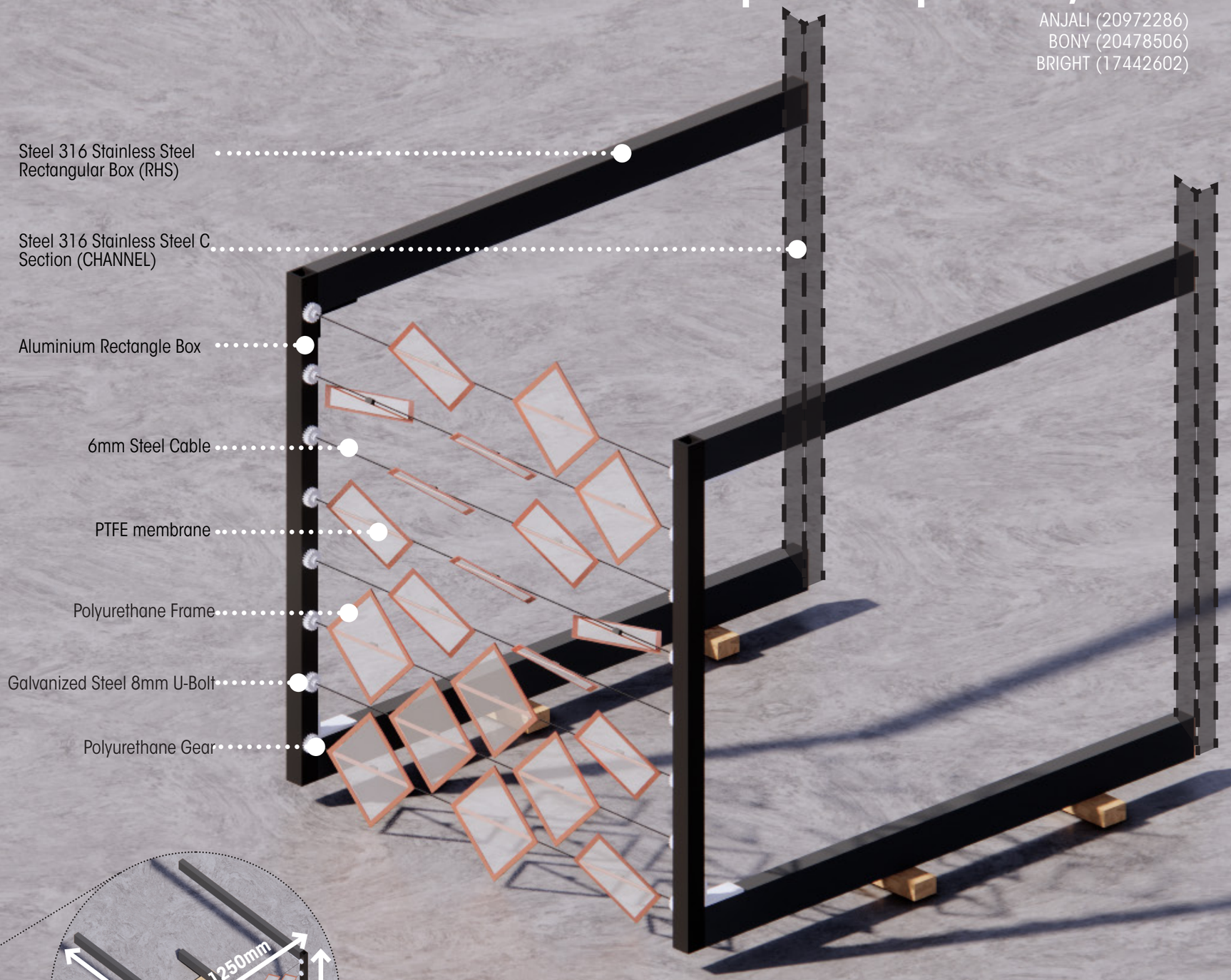
CONTEXT AND ELEVATION

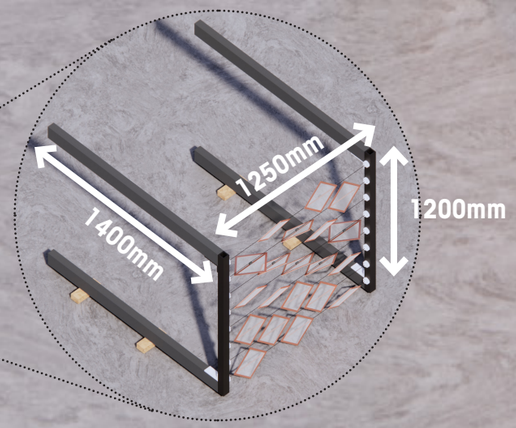












Adaptive Modular Envelope

Natspec Competition,2022

ANJALI (20972286)
BONY (20478506)
BRIGHT (17442602)

SPECIFICATIONS

Description
100x50x3mm Brushed Rectangular Tube 316 is a 316 Grade Stainless Steel which has extensive use in marine - food and chemical processing equipment. Type 316 has extensive use in chemical processing equipment when better corrosion resistance is required than is afforded by chromium-nickel steels. Typical applications are Food Processing, Chemical Processing, Photographic, Pharmaceutical and Textile Finishing Equipment and Marine Exterior Trim.

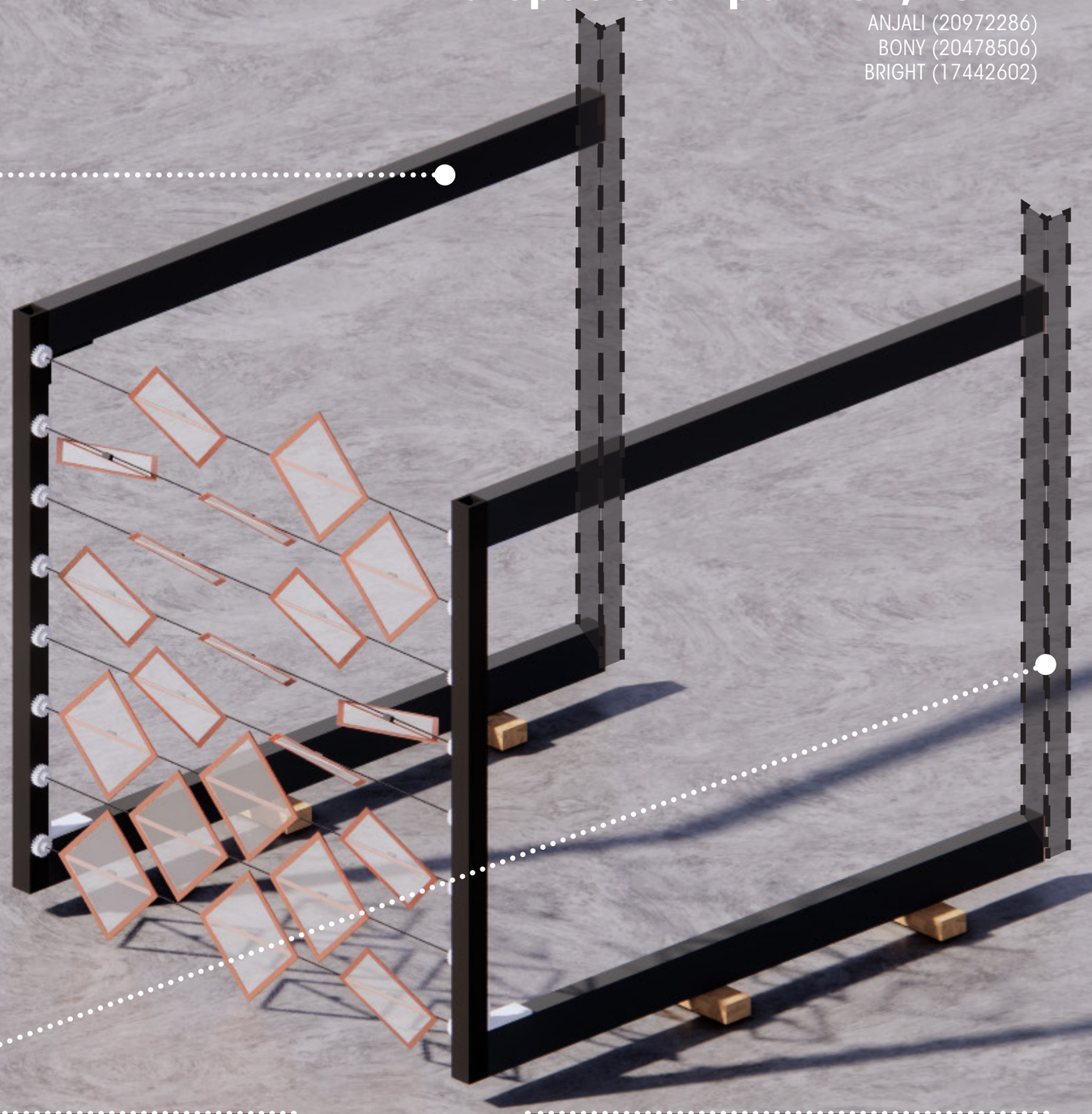
Corrosion resistance
High corrosion resistance to attacks in marine and corrosive industrial atmospheres. The excellent corrosion resistance makes it suitable particularly where 304 is doubtful.

Characteristics
Tensile Strength (Mpa) = 580 – 650
Hardness Supplied (HB) = 195 – 150
Machinability Rating % = 48

Preparation and pre-treatment
Standard: To the AS 1627 series

Galvanizing
General: Galvanize mild steel components (including fasteners) to AS/NZS 1214, AS 1397 or AS/NZS 4680.

Steel 316 Stainless Steel Rectangular Box (RHS)



Steel 316 Stainless Steel C Section (CHANNEL)

Description
100x50x6 316 PFC is a 316 Grade Stainless Steel which has extensive use in marine - food and chemical processing equipment . 316 Grade Stainless steel is used when better corrosion resistance is required than chromium-nickel(304 Grade) stainless steels. Type 316 has extensive use in chemical processing equipment when better corrosion resistance is required than is afforded by chromium-nickel steels. Typical applications are Food Processing, Chemical Processing, Photographic, Pharmaceutical and Textile Finishing Equipment and Marine Exterior Trim.

Corrosion resistance
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Preparation and pre-treatment
Standard: To the AS 1627 series

Galvanizing
General: Galvanize mild steel components (including fasteners) to AS/NZS 1214, AS 1397 or AS/NZS 4680,

Supplier
InfraBuild, Karratha
Factory located within proximity of site. Painted RHS (rectangular hollow sections) are high-strength cold-formed hollow steel sections that are primer painted for protection during storage and handling. DuraPrimed primer paint for tubular steel products has been developed specifically to save users time and money without compromising quality.

InfraBuild
Building futures through sustainable steel

Complaince
Design, materials and protection: To AS/NZS 4600.
Residential and low-rise steel framing: To NASH-1 (National Association of Steel Housing) and NASH-2 Standard.
AS/NZS 4801:2001, Occupational health and safety management systems - Specification with guidance for use.

Adaptive Modular Envelope

Natspec Competition,2022

ANJALI (20972286)
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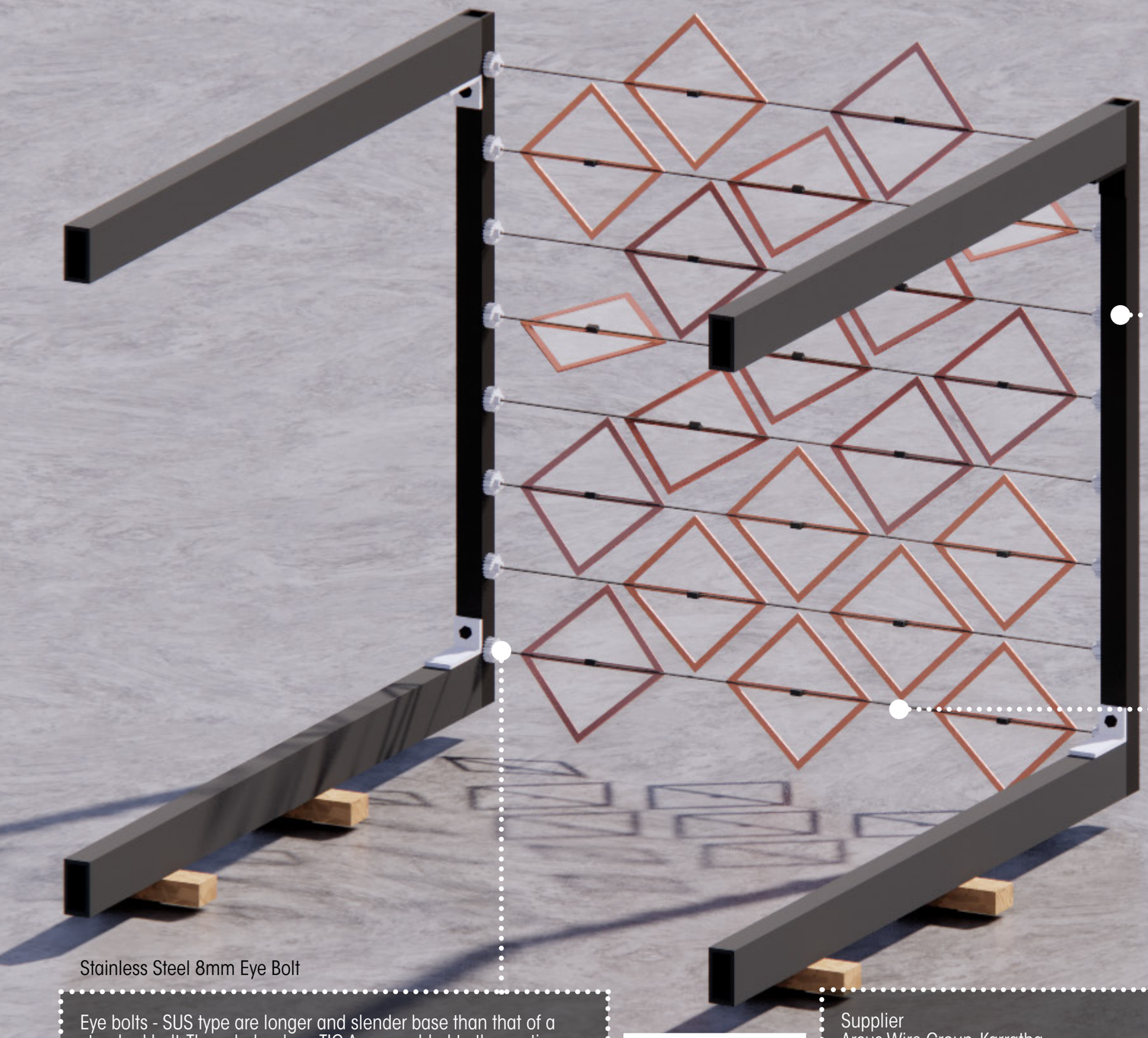
SPECIFICATIONS

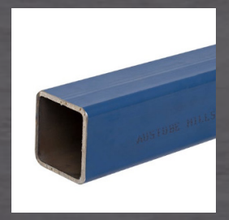


Aluminium Square Tube

Description
Metal Plate 70 x 70 x 1.85 x 3 – Aluminum Square Tube. Aluminum square tube is lightweight and easy to work with, available in 19.05mm and 25.4mm widths in one and three metre lengths. All profiles have a mill finish.

Adds strength and rigidity to joints. Easy to drill, rivet, screw and cut. Alloy 6063/Temper T5. This square tube is ideal for use in shelving, craft modelling projects, repair, maintenance and temporary outdoor fixtures such as market stalls and awnings.

Sustainability
Aluminium square box section is lightweight and easy to work with and can be supplied according to AS/NZS 1866:1997.



Safety
Design, materials and protection:
To AS/NZS 4600.
Residential and low-rise steel framing:
To NASH-1 (National Association of Steel Housing) and NASH-2 Standard. AS/NZS 1866: Aluminium And Aluminium Alloys – Extruded Rod, Bar, Solid And Hollow Shapes

6mm Coated Stainless Steel Cable

Description
7x7 is a PVC coated wire which is coated with UV stabilised PVC. The wire strand has the same workings of a 7x7 strand which is semi-flexible. It is available in many internal and external diameter combinations. Coated Stainless Steel Wire Rope

Sustainability
Comply with international standards (ISO14001:2015).
Arcus Wire Group - As the market leader in Stainless Steel wire rope supply across Australia, we were the first to move to environmentally friendly timber wire reels.

Safety
Workplace and Onsite Safety conditions to meet as per ISO 45001 standards and long-standing workplace health and safety legislative framework, and voluntary document, AS/NZS 4801:2001, Occupational health and safety management systems - Specification with guidance for use.

Stainless Steel 8mm Eye Bolt

Eye bolts - SUS type are longer and slender base than that of a standard bolt. Threaded rod are TIG Argon welded to the casting eye.
Forging Material = AISI316 - DIN 1.4401
Production: S306 -Thread - Forged
Surface Treatment: "E. P" Electro Polished

Sustainability
100% Recyclable

ARCUS WIRE GROUP
MARINE • INDUSTRIAL • ARCHITECTURAL

InfraBuild
Building futures through sustainable steel

Supplier
Arcus Wire Group, Karratha
Arcus Wire Group has been involved in the wire rope industry for close to 60 years, developing and supplying stainless wire rope in Australia and New Zealand for over 30 years, and due to our first-class products, customer service and expertise, are now working with clients all over the world.

Adaptive Modular Envelope

Natspec Competition,2022

ANJALI (20972286)
BONY (20478506)
BRIGHT (17442602)

SPECIFICATIONS

Polyutherane frame

Description
200 x 200 - Polyurethane panel frame.
As well as being extremely durable and relatively inexpensive, polyurethane is very easy to work with.

Polyurethane is used as the core material for sandwich panels because of its extremely low heat transfer coefficient, λ = 0.23 (W/mK), which makes it twice as effective as other materials for thermal insulation.

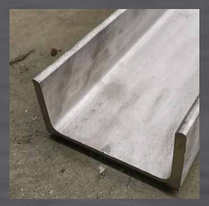
PIRPUR/PUR is a renewable resource, derived from green sources, such as rapeseed, and it has an extremely high thermal insulating performance, which minimizes the impact of the CO2 emissions we produce by heating our homes.

SUSTAINABILITY
By using polyurethanes, we are able to conserve energy in a sustainable manner. In addition to reducing energy consumption and greenhouse gas emissions, they can be used to better insulate buildings, reducing their use of gas, oil, and electricity.

Supplier
Polynyl Plastics Pty Ltd – Polyutherane panel frame
A polyurethane manufacturer in Australia, Polynyl Plastics (Aust) Pty Ltd specializes in solid flexible and semi-rigid polyurethane products. In business for 49 years, Polynyl Plastics manufactures a wide selection of products and provides services that serve a wide range of needs. This company provides polyurethane products and services to a broad range of industries, including logistics and engineering.

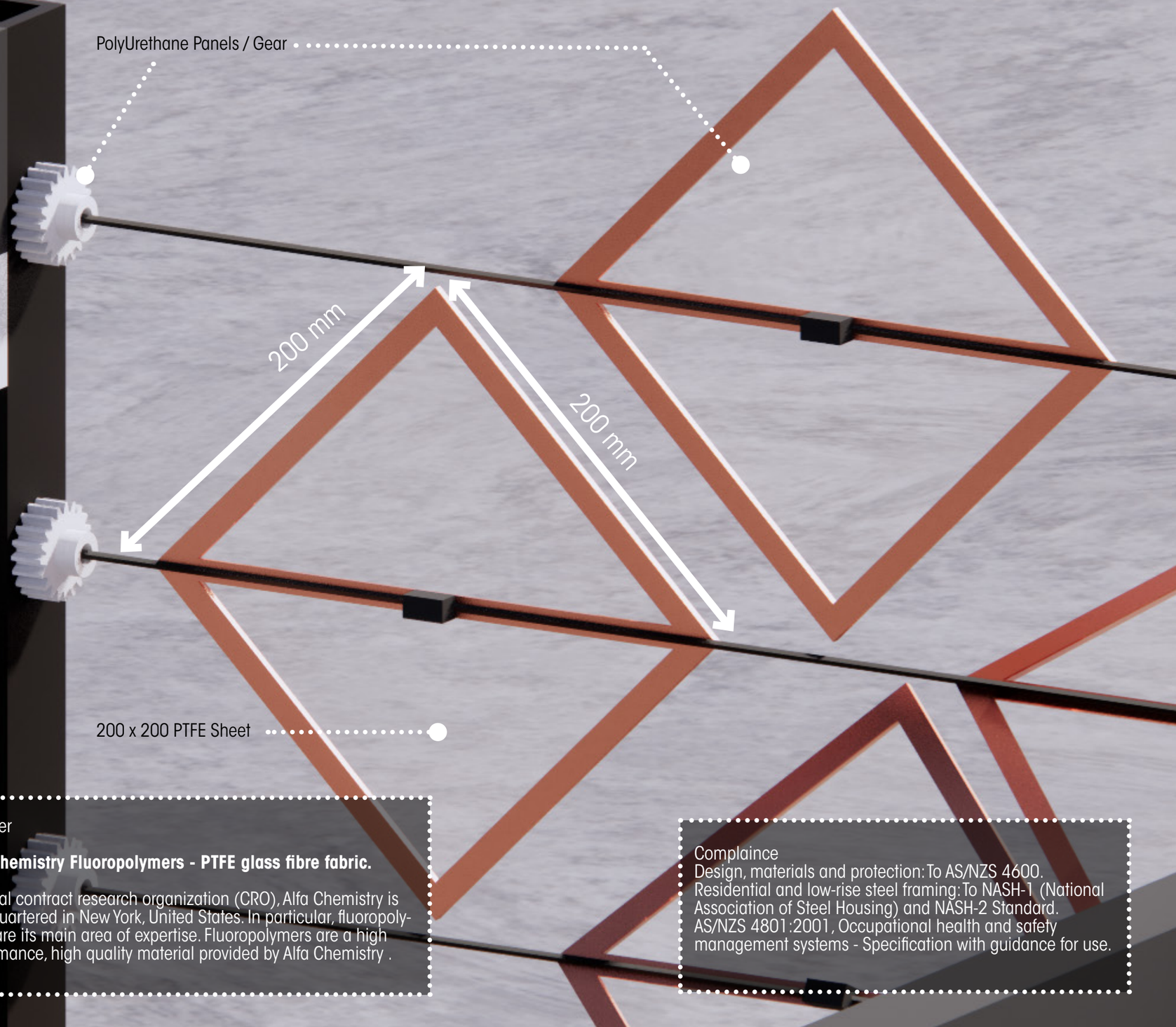
Translucent PTFE panel

Description
200 x 200 – PTFE coated glass fibre fabric. Teflon (Polytetrafluoroethylene) coated woven fiberglass membrane is a high-performance fabric used for tensile membrane structures. Due to its high resistance to heat transfer, PTFE makes an ideal material for shade structures, as it is highly reflective and can withstand high temperatures (-73°C – 232°C).



Thickness: 0.06-1.0mm;
Structure of basal fabric: plain, diagonal, satin, etc.
Width: 1000-4200mm;
Color: brown, white, black, black-argent;
Coatings: double-faced coating, single-faced coating, ventilate coating, static resistant coating.

Applied range : Heat-resistant envelope, thermally efficient terrace material, heat insulation enswathing.



Supplier

Alfa Chemistry Fluoropolymers - PTFE glass fibre fabric.

A global contract research organization (CRO), Alfa Chemistry is headquartered in New York, United States. In particular, fluoropolymers are its main area of expertise. Fluoropolymers are a high performance, high quality material provided by Alfa Chemistry .

Complaince
Design, materials and protection: To AS/NZS 4600.
Residential and low-rise steel framing: To NASH-1 (National Association of Steel Housing) and NASH-2 Standard.
AS/NZS 4801:2001, Occupational health and safety management systems - Specification with guidance for use.

Adaptive Modular Envelope

SPECIFICATIONS

Natspec Competition,2022

ANJALI (20972286)
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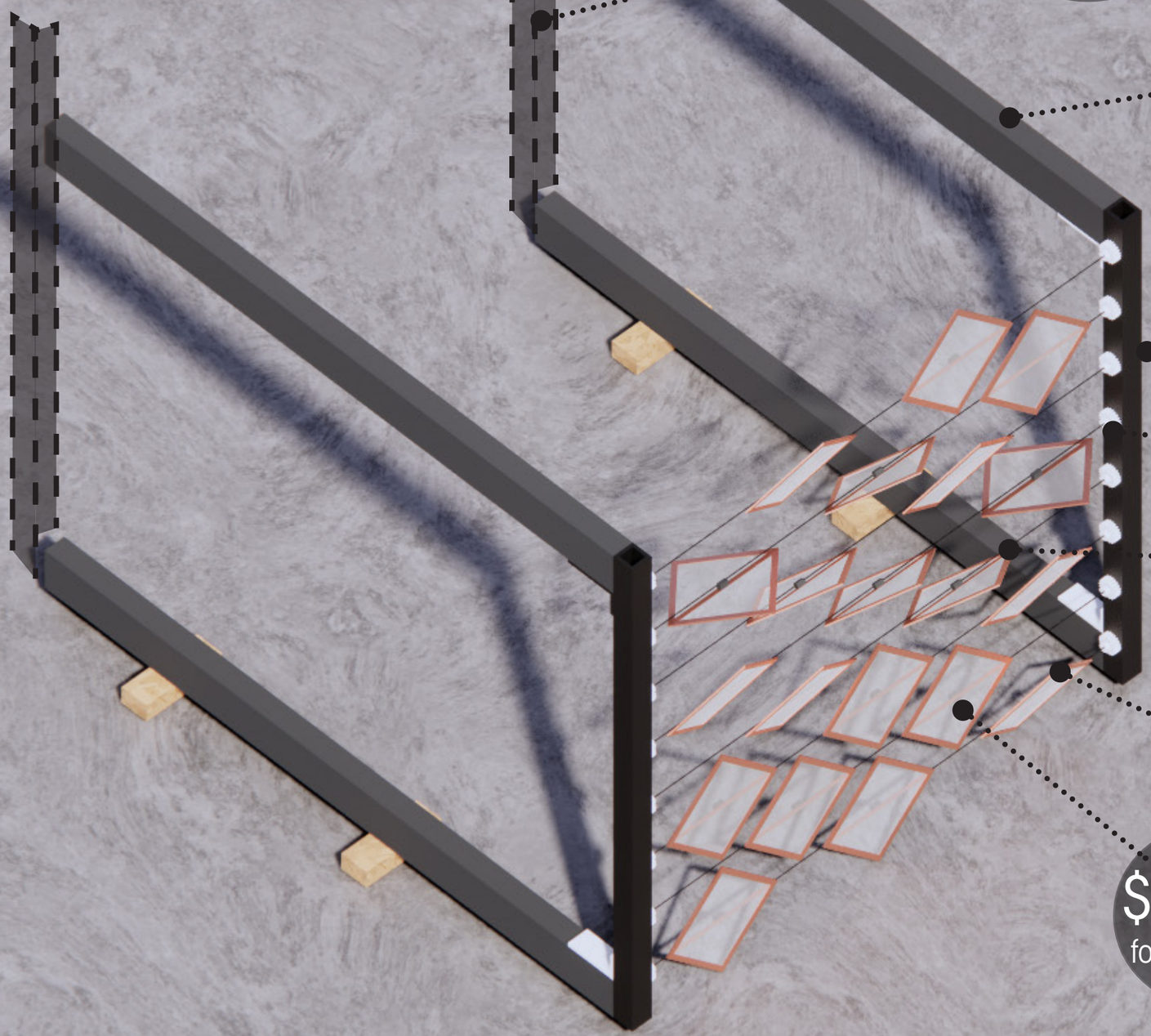


$226
for 12m
SS C Section

$128
for 6m
SS RHS

$3531
Overall Cost of 1 Module

$110
for 3m
Aluminium RHS

$400
for 16
SS Eye Bolt
with Gear

$87
for 10m
SS Cable

$1500
for 20
Polyurethane
Panels + Gears

$1080
for 6m PTFE

Adaptive Modular Envelope

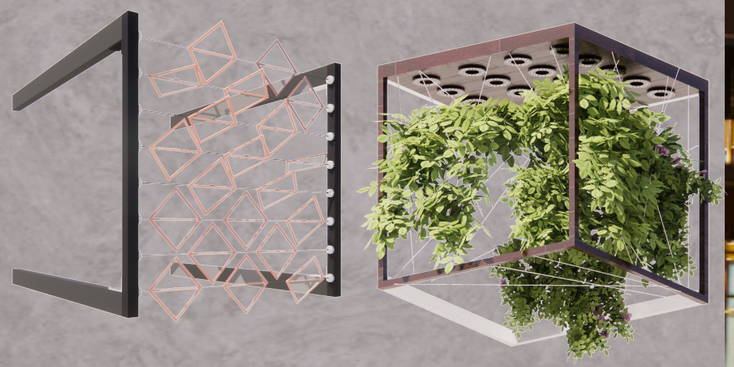
https://bonygeorge1111.wixsite.com/adaptive-envelope

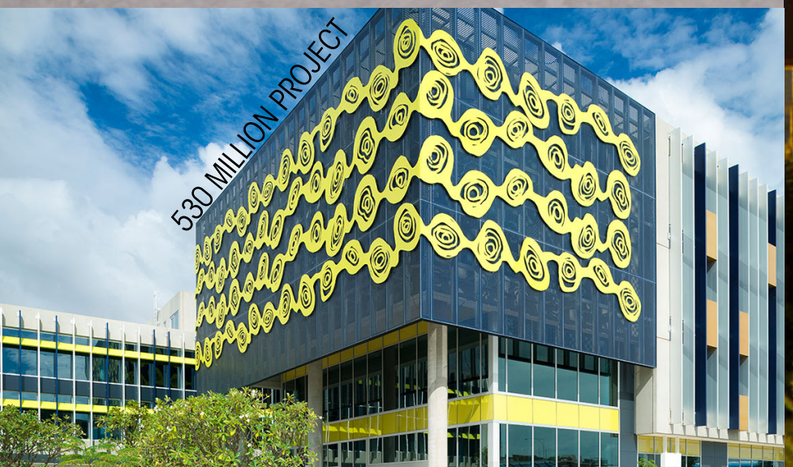
TOTAL NUMBER OF MODULES = 220

STORAGE AND HANDLING
Deliver modules to site in unbroken wrapping or packs. Store in dry conditions, a minimum 100 mm above the subfloor. Do not store on the subfloor until the moisture content of the subfloor is suitable for the installation of the floor. Do not store in areas with wet plaster or paint.

MODULE 1

MODULE 2





$ 776,820 ENVELOPE PROPOSAL

AFFORDABLE MODULAR FACADE FOR UNIVERSAL BUILDING DESIGN

ANJALI (20972286)
BONY (20478506)
BRIGHT (17442602)

The Quarter HQ Specification

Street Address	24 Sharpe Ave
Suburb	Karratha
State	WA
Postcode	6714

Team	Date	Approved by
Anjali (20972286) Bony (20478506) Bright (17442602)	31/05/2022	

Contents

0100 PRELIMINARIES

1 GENERAL

1.1 THE SITE

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

Access: Comply with access on to and within the site, use of the site for temporary works and constructional plant, including working and storage areas, location of offices, workshops, sheds, roads and parking, as documented.

Occupied premises
General: For the parts of the site designated as occupied premises:

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

Proposals: Submit details of proposed methods.

- Purpose of submission: Information only.

Protection of persons and property
Temporary works: Provide and maintain required barricades, guards, fencing, shoring, temporary roadways, footpaths, signs, lighting and traffic management.

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

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

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

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

Existing services
Service to be continued: Repair, divert or relocate, as documented.

Trenches: If the existing service crosses the line of a required trench, or will lose support when the trench is excavated, provide permanent support for the existing service.

Redundant services: Remove redundant parts and make safe.

Interruptions to services: Minimize the number and duration of interruptions.

Proposals: Submit proposals for action to be taken to existing services before starting this work.

- Purpose of submission: For review.

Adjoining properties

Notice: At least 10 working days before commencing work, submit to owners and occupants of adjoining property written notice of intention to commence work and an outline description of the type and extent of work.

Revealed encroachments: If the works reveal unknown encroachments of adjoining property on to the site or of existing site structures on to adjoining property, immediately seek instructions.

Records: For each adjoining property to be recorded:

- Inspect the property with the architect and owner and occupant of the property, before commencement of work.
- Make detailed records of conditions existing within the property, especially structural defects and other damage or defacement.
- Arrange for at least 2 copies of each record, including drawings, written descriptions, and photographs, endorsed by the owner and occupant of the property, or their representatives, as evidence of conditions existing before commencement of work.

Endorsed copies: Submit one endorsed copy of each record. Keep the other endorsed copy on site.

- Purpose of submission: Information only.

1.2 CONSTRUCTION PLANT

Access

Access route: As nominated and documented.

Parking

Owner's existing parking areas: Use spaces only in designated parking areas and as documented.

Use of existing services

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

Temporary services

General: Provide temporary services for the performance of the contract, as documented.

Project signboards

General: Provide project-specific signboards and as follows:

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

1.3 BUILDING THE WORKS

Surveys

General: Use information from a licensed surveyor for the following:

- Setting out.
- Check surveys.

- Final survey.

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

Care of survey marks: Preserve and maintain the principal's survey marks in their true positions.

Rectification: If the survey marks are disturbed or obliterated, immediately rectify.

Safety
Accidents: Promptly notify the principal of the occurrence of the following:

- Accidents involving death or personal injury.
- Accidents involving loss of time.

Accident reports: Submit reports of accidents.

- Purpose of submission: Information only.

Contractor's representative
General: Must be accessible, and fluent in English and technical terminology.

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

Items supplied by owner
General: Materials and other items supplied free of charge to the contractor for installation in the execution of the works, as documented.

Unload and take delivery, inspect for defects and take care of the items. If defects are found, advise. Return unused items to the principal.

1.4 COMPLETION OF THE WORKS

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

Adjoining properties
Evaluation: At practical completion, for each adjoining property recorded, inspect the property with the architect and owner and occupant of the property, recording any damage that has occurred since the pre-commencement inspection.

Pest eradication
General: Employ suitably qualified pest exterminators. At practical completion verify that completed works are free of pest types, as documented.

1.5 MISCELLANEOUS

Contractor and owner to observe confidentiality
Publicity: Do not issue information concerning the project for publication in the media without prior written approval of the owner.

Compliance with the law
Requirements of authorities: The Principal, before entering into the contract, has given the notices, paid the fees, and obtained the permits, approvals and other authorizations as documented.

0101 GENERAL REQUIREMENTS

1 GENERAL

1.1 APPLICABILITY

General
Requirement: Conform to *0171 General requirements*, as appropriate, in all work sections.

1.2 PERFORMANCE

Bushfire-prone areas
Bushfire Attack Level (BAL): To AS 3959 and BCA 3.10.5, and as documented.

Energy efficiency
Energy efficiency approval commitments: To the performance requirements of BCA 2.6, the construction requirements of BCA 3.12, and as documented.

Structural design actions
Standard: To the AS/NZS 1170 series and AS 4055 as appropriate.

Importance level to AS/NZS 1170.0: Level 2.

1.3 STANDARDS

Current editions
General: Use referenced Australian or other standards (including amendments), and the NCC including state and territory variations which are current three months before the date of the contract except where other editions or amendments are required by statutory authorities. Any local authority requirements take precedence.

1.4 INTERPRETATION

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

- BCA: National Construction Code Series Volume Two: Building Code of Australia Class 1 and Class 10 buildings.
- NCC: National Construction Code.

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

- Contractor: Means the same as builder.
- Documented: Documented, as documented and similar terms mean contained in the contract documents.
- Hot-dip galvanized: Zinc coated to AS/NZS 4680 after fabrication.
- Metallic-coated: Steel coated with zinc or aluminium-zinc alloy by a continuous hot-dip process.
- Owner: Owner has the same meaning as client, principal or proprietor and is the party to whom the contractor is legally bound to construct the works.
- Professional engineer: As defined by the NCC.
- Proprietary: Identifiable by naming manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.

- Provide: Provide and similar expressions mean supply and install and include development of the design beyond that documented.
- Required: Means required by the contract documents, the local council or statutory authorities.

2 PRODUCTS

2.1 GENERAL

Manufacturers or suppliers' recommendations
General: Provide and select, if no selection is given, transport, deliver, store, handle, protect, finish, adjust and prepare for use the manufactured items to the manufacturers' or suppliers' recommendations.

Proprietary items/systems/assemblies: Assemble, install or fix to substrate to the manufacturers' or suppliers' recommendations.

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

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

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

2.2 STEEL SUBFRAME

General

1. Read this Work Section in conjunction with other related Work Sections and the Contract Conditions.
2. The Contractor shall be responsible to supply, deliver, install and warrant the work in strict compliance with the materials and workmanship requirements of the Specification that shall be developed and issued in later design stages and in accordance to the Contract Conditions.
3. Reference drawing codes and accompanying descriptions are contained in the Schedule of Finishes.

Product
Steel 316 Stainless Steel Rectangular Box (RHS)
100x50x3mm Brushed Rectangular Tube 316 is a 316 Grade Stainless Steel which has extensive use in marine - food and chemical processing equipment.

Description
Type 316 has extensive use in chemical processing equipment when better corrosion resistance is required than is afforded by chromium-nickel steels. Typical applications are Food Processing, Chemical Processing, Photographic, Pharmaceutical and Textile Finishing Equipment and Marine Exterior Trim.

Corrosion resistance
High corrosion resistance to attacks in marine and corrosive industrial atmospheres. The excellent corrosion resistance makes it suitable particularly where 304 is doubtful.

Characteristics
Tensile Strength (Mpa) = 580 – 650
Hardness Supplied (HB) = 195 – 150
Machinability Rating % = 48

Preparation and pre-treatment
Standard: To the AS 1627 series

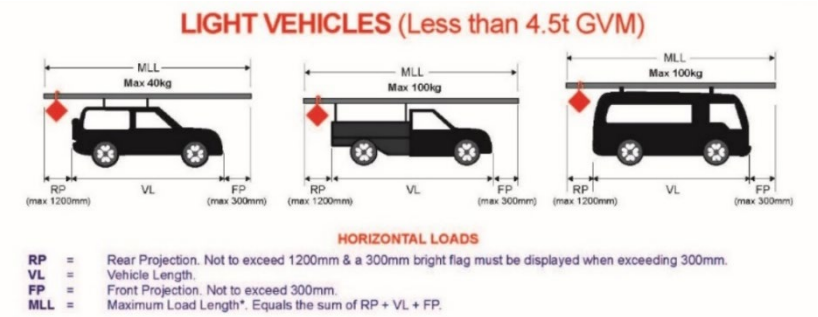
Galvanizing
General: Galvanize mild steel components (including fasteners) to AS/NZS 1214, AS 1397 or AS/NZS 4680, as appropriate, and in the following conditions:
- Exposed to weather.
- Exposed to air spaces behind modular panel

Supplier

1. InfraBuild, Karratha
   Factory located within proximity of site. Painted RHS (rectangular hollow sections) are high-strength cold-formed hollow steel sections that are primer painted for protection during storage and handling. DuraPrimed primer paint for tubular steel products has been developed specifically to save users time and money without compromising quality.
   Price per unit - $127.44
   Weight per unit – 41.kg

2. Edcon Steel and Metal Solutions, NSW.
   Edcon Steel Stocks a wide range of profiles and sizes able to be cut in any lengths.

Logistics
Light Vehicle Per Trip.
1 module = 6m length.
1 trip = 6m x 2no. = 2modules
220 modules = 110 trips



Sustainability
Comply with international standards (ISO14001:2015).
- InfraBuild's CN30 (carbon neutral by 2030) objective sets a clear target for InfraBuild to be a low carbon emission, carbon neutral, steel manufacturer by 2030.
- During the reporting period, all certified sites achieved recertification against the ISO 14001:2015 standard for Environmental Management Systems.

Safety Compliance
Workplace and Onsite Safety conditions to meet as per ISO 45001 standards and long-standing workplace health and safety legislative framework, and voluntary document, AS/NZS 4801:2001, *Occupational health and safety management systems - Specification with guidance for use*.

2.3 STEEL SUPPORT

General

1. Read this Work Section in conjunction with other related Work Sections and the Contract Conditions.
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Characteristics

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Hardness Supplied (HB) = 195 – 150
Machinability Rating % = 48

Preparation and pre-treatment

Standard: To the AS 1627 series

Galvanizing

General: Galvanize mild steel components (including fasteners) to AS/NZS 1214, AS 1397 or AS/NZS 4680, as appropriate, and in the following conditions:
- Exposed to weather.
- Exposed to air spaces behind modular panel

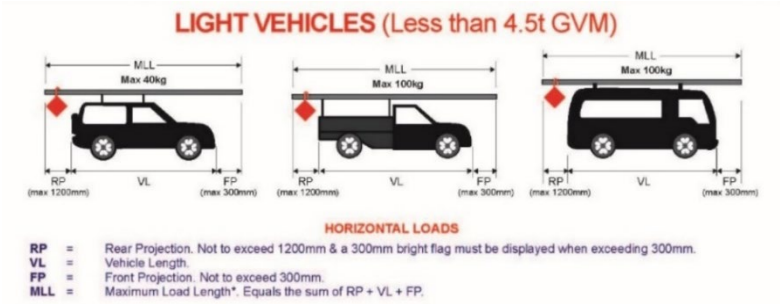
Supplier

1. InfraBuild, Karratha
   Factory located within proximity of site. Painted RHS (rectangular hollow sections) are high-strength cold-formed hollow steel sections that are primer painted for protection during storage and handling. DuraPrimed primer paint for tubular steel products has been developed specifically to save users time and money without compromising quality.
   Price per unit - $226.23
   Weight per unit – 53.86kg

2. Edcon Steel and Metal Solutions, NSW.
   Edcon Steel Stocks a wide range of profiles and sizes able to be cut in any lengths.

Logistics

Light Vehicle Per Trip.
1 grid = 12m length.
1 trip = 6m x 2no. = 1grids
35 grids = 35 trips



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Comply with international standards (ISO14001:2015).

- InfraBuild's CN30 (carbon neutral by 2030) objective sets a clear target for InfraBuild to be a low carbon emission, carbon neutral, steel manufacturer by 2030.
- During the reporting period, all certified sites achieved recertification against the ISO 14001:2015 standard for Environmental Management Systems.

Safety Compliance

1. Workplace and Onsite Safety conditions to meet as per ISO 45001 standards and long-standing workplace health and safety legislative framework, and voluntary document,
2. AS/NZS 4801:2001, *Occupational health and safety management systems - Specification with guidance for use*.
3. Design, materials and protection: To AS/NZS 4600.
4. Residential and low-rise steel framing: To NASH-1 (National Association of Steel Housing) and NASH-2 Standard.

2.4 PROTECTIVE COATINGS

General

Coating standards as per Environment: To AS 2312.1 clause 2.3.
Coating designation: To AS 2312.1 Table 6.3.

2.5 FASTENERS

Screws, Nuts, Bolts, Plates

Standards to High strength steel bolts with associated nuts and washers for structural engineering. AS/NZS 1252-1996
Standards to screws and bolts as per AS/NZS 1110-1995
All other joints and fasteners to Standard: to AS 3566.1.

0201 MODULAR PANEL

General

1. Read this Work Section in conjunction with other related Work Sections and the Contract Conditions.
2. The Contractor shall be responsible to supply, deliver, install and warrant the work in strict compliance with the materials and workmanship requirements of the Specification that shall be developed and issued in later design stages and in accordance to the Contract Conditions.
3. Reference drawing codes and accompanying descriptions are contained in the Schedule of Finishes.

1.1 STANDARDS

GENERAL

Design, materials and protection: To AS/NZS 4600.

Residential and low-rise steel framing: To NASH-1 (National Association of Steel Housing) and NASH-2 Standard.

1.2 TOLERANCES

General

Manufacturing, assembly and installation tolerances: To NASH-1 Appendix D and NASH-2 Appendix A.

1.3 SUBMISSIONS

Design

General: Where the structural documentation defines performance criteria, submit as follows:

- Design to AS/NZS 4600 or NASH-1: Independent design, documentation and certification from a professional engineer.
- To NASH-2: Certification of conformance to NASH-2.

Reactions: Provide location and magnitude of reactions to be accommodated by the support structure.

Shop drawings

General: Submit shop drawings, to a scale that best describes the detail requirements for the documented configurations and loadings.

Prefabricated modular facade: Include the following:

- Plan: Top View layout.
- Elevations: Arrangement of members, allowing for the accommodation of diamond panels and the size and section type of each member.
- Holding down and bracing: Details demonstrating capability to resist lateral and torques of twist.
- Method of assembly and connection details.

Prefabricated floor frames/cassettes: Include the following:

- Plan: Level of installation, arrangement of members, and size and section type of each member, including prefabricated floor joists.
- Method of assembly, connection, holding down and bracing.

PRODUCT

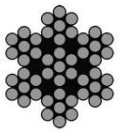
1. Aluminium Tubes

Metal Plate 70 x 70 x 1.85 x 3 – Aluminum Square Tube. Aluminum square tube is lightweight and easy to work with, available in 19.05mm and 25.4mm widths in one and three metre lengths. All profiles have a mill finish.

Description

Adds strength and rigidity to joints. Easy to drill, rivet, screw and cut. Alloy 6063/Temper T5. This square tube is ideal for use in shelving, craft modelling projects, repair, maintenance and temporary outdoor fixtures such as market stalls and awnings.

2. 6mm Coated Stainless Steel Cable



7x7 is a PVC coated wire which is coated with UV stabilized PVC. The wire strand has the same workings of a 7x7 strand which is semi-flexible. It is available in many internal and external diameter combinations. Coated Stainless Steel Wire Rope

3. Stainless Steel 8mm Eye Bolt

Eye bolts - SUS type is longer and slender base than that of a standard bolt. Threaded rod are TIG Argon welded to the casting eye.
Forging Material = AISI316 - DIN 1.4401
Production: S306 -Thread - Forged
Surface Treatment: "E. P" Electro Polished

Supplier

1. InfraBuild, Karratha – Aluminium Tubes
   Factory located within proximity of site. Painted finish as per color of choice.
   InfraBuild Steel Centre supplies extruded aluminium square tube (SHS) in a wide range of sizes and a variety of grades, including both architectural alloy and structural alloy. Square section aluminium tubing can be supplied with both square edge and radial edge
   Price per unit - $110
   Weight per unit – 12kg

2. Arcus Wire Group – SS PVC Coated Wire.
   Arcus Wire Group has been involved in the wire rope industry for close to 60 years, developing and supplying stainless wire rope in Australia and New Zealand for over 30 years, and due to our first-class products, customer service and expertise, are now working with clients all over the world.
   Price per unit - $87

Sustainability

Comply with international standards (ISO14001:2015).

- Eye Bolt – 100% Recyclable.
- Arcus Wire Group - As the market leader in Stainless Steel wire rope supply across Australia, we were the first to move to environmentally friendly timber wire reels.
- Aluminium square box section is lightweight and easy to work with and can be supplied according to AS/NZS 1866:1997.

Safety Compliance

5. Workplace and Onsite Safety conditions to meet as per ISO 45001 standards and long-standing workplace health and safety legislative framework, and voluntary document,
6. AS/NZS 4801:2001, *Occupational health and safety management systems - Specification with guidance for use*.
7. Design, materials and protection: To AS/NZS 4600.
8. Residential and low-rise steel framing: To NASH-1 (National Association of Steel Housing) and NASH-2 Standard.
9. AS/NZS 1866: *Aluminium and Aluminium Alloys – Extruded Rod, Bar, Solid and Hollow Shapes*

1.4 GENERAL

Storage and handling

Requirement: Transport all components to site and store if required in a manner so as not to damage or distort the components.

1.5 COMPONENTS

Damp-proof course

Membrane: To the membrane requirements of AS 2870 or AS/NZS 2904.

Cold-formed steel framing

Cold-formed sections from metallic-coated steel: To AS 1397.

Corrosion protection: To NASH-2 Section 8.

Framing members

Cold-formed steel framing for proprietary systems: To NASH-1 or NASH-2.

2 EXECUTION

2.1 GENERAL

Frame fabrication

Length: Cut members accurately to length so that they fit firmly against abutting members.

Service holes: If not pre-punched, form holes by drilling or punching, conforming to the requirements of NASH-2.

Swarf: Immediately remove swarf and other debris from cold-formed steel framing.

Fastening

Prefabricated framing: Fasten framing elements using fasteners, as documented, to the fabricator's requirements.

Framing built in-situ: Use fasteners, as documented, from the following types:

- Bolting.
- Self-drilling, self-tapping screws.
- Blind rivets.
- Proprietary clinching system.
- Structural adhesives.
- Welding. On-site welded connections are not permitted.

Compatibility: Compatible with steel frame to prevent galvanic corrosion of dissimilar metals.

Welding
Burning: Avoid procedures that result in greater than localized burning of the sheets or framing members.

Prefabricated frames
General: Protect frames from damage or distortion during erection.

Unseasoned or CCA treated timber
General: Do not fix in contact with framing without fully painting the steel.

Earthing
Requirement: To AS/NZS 3000. Provide temporary earthing during erection until the permanent earthing is installed.

Protection
General: Restore coatings which have been damaged by welding or other causes. Thoroughly clean affected areas back to base metal and coat with a zinc rich organic primer.

Metal separation: Install lagging to separate non-ferrous service pipes and accessories from the framing.

Grommets: Provide grommets to isolate piping and wiring from cold-formed steel framing.

Site cut holes: Provide plastic bushes or grommets to site cut holes.

2.2 COMPONENT FABRICATION

Fabrication
Assembly: Factory assemble trusses.

Marking
General: Permanently mark each truss to show:

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

Installation
Support: Support and fix trusses to the truss fabricator's recommendations.

Vertical movement: Over internal walls provide at least 10 mm vertical clearance and use bracing methods which allow for vertical movements, to the truss fabricator's recommendations.

Holding down and bracing: Provide details demonstrating capability to resist lateral and uplift forces.

2.3 COMPLETION

Cleaning
General: On completion of framing remove debris from any gaps between members and make sure void between bottom chord of roof trusses and top of any non-supporting internal wall is clear.

0205 DIAMOND PANEL COMPONENT

General

4. Read this Work Section in conjunction with other related Work Sections and the Contract Conditions.
5. The Contractor shall be responsible to supply, deliver, install and warrant the work in strict compliance with the materials and workmanship requirements of the Specification that shall be developed and issued in later design stages and in accordance to the Contract Conditions.
6. Reference drawing codes and accompanying descriptions are contained in the Schedule of Finishes.

1.1 STANDARDS

GENERAL

Design, materials and protection: To AS/NZS 4600.

Residential and low-rise steel framing: To NASH-1 (National Association of Steel Housing) and NASH-2 Standard.

1.2 TOLERANCES

General

Manufacturing, assembly and installation tolerances: To NASH-1 Appendix D and NASH-2 Appendix A.

1.3 SUBMISSIONS

Design

General: Where the structural documentation defines performance criteria, submit as follows:

- Design to AS/NZS 4600 or NASH-1: Independent design, documentation and certification from a professional engineer.
- To NASH-2: Certification of conformance to NASH-2.

Reactions: Provide location and magnitude of reactions to be accommodated by the support structure.

Shop drawings

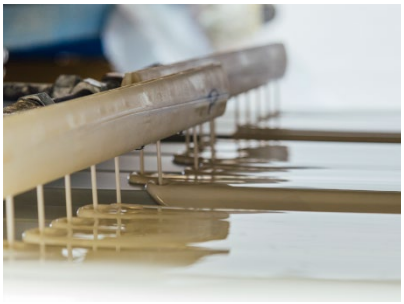
General: Submit shop drawings, to a scale that best describes the detail requirements for the documented configurations and loadings.

Prefabricated diamond panel component: Include the following:

- Plan: Top View layout.
- Elevations: Arrangement of diamond panels, allowing for the size and section type of each translucent PTFE panel and Polyurethane frame.
- Method of assembly and connection details.

2 PRODUCTS

1. Polyutherane panel frame



200 x 200 - Polyurethane panel frame. As well as being extremely durable and relatively inexpensive, polyurethane is very easy to work with.

Description

Polyurethane is used as the core material for sandwich panels because of its extremely low heat transfer coefficient, λ = 0.23 (W/mK), which makes it twice as effective as other materials for thermal insulation. PIRPUR/PUR is a renewable resource, derived from green sources, such as rapeseed, and it has an extremely high thermal insulating performance, which minimizes the impact of the CO2 emissions we produce by heating our homes.

2. Translucent PTFE panel

200 x 200 – PTFE coated glass fibre fabric. Teflon (Polytetrafluoroethylene) coated woven fiberglass membrane is a high-performance fabric used for tensile membrane structures. Due to its high resistance to heat transfer, PTFE makes an ideal material for shade structures, as it is highly reflective and can withstand high temperatures (-73°C – 232°C).

Main types and specifications:

Thickness: 0.06-1.0mm;
Structure of basal fabric: plain, diagonal, satin, etc.
Width: 1000-4200mm;
Color: brown, white, black, black-argent;
Coatings: double-faced coating, single-faced coating, ventilate coating, static resistant coating.

Applied range : Heat-resistant envelope, thermally efficient terrace material, heat insulation enswathing.

Suppliers

1. Alfa Chemistry Fluoropolymers– PTFE glass fibre fabric.
   A global contract research organization (CRO), Alfa Chemistry is headquartered in New York, United States. In particular, fluoropolymers are its main area of expertise. Fluoropolymers are a high performance, high quality material provided by Alfa Chemistry .

Standard PTFE sheet – 1200 x 1200

Thickness(Mm)	Tolerance(Mm)
0.50	+0.03/-0
0.80	+0.04/-0
1.00	+0.05/-0
1.50	+0.10/-0
2.00	+0.30/-0
2.50	+0.30/-0
3.00	+0.30/-0
4.00	+0.35/-0
5.00	+0.35/-0
6.00	+1.20/-0
8.00	+1.20/-0
10.00	+1.20/-0

3. Polynyl Plastics Pty Ltd – Polyutherane panel frame
   A polyurethane manufacturer in Australia, Polynyl Plastics (Aust) Pty Ltd specializes in solid flexible and semi-rigid polyurethane products. In business for 49 years, Polynyl Plastics manufactures a wide selection of products and provides services that serve a wide range of needs. This company provides polyurethane products and services to a broad range of industries, including logistics and engineering.

Sustainability

Comply with international standards (ISO14001:2015).

- Alfa Chemistry Fluoropolymers - "We are passionate about the field of fluoropolymers, and we are looking forward to working with scientists, researchers, and engineers in many industries around the world to find new and better ways to solve fluoropolymer-related scientific problems."
- By using polyurethanes, we are able to conserve energy in a sustainable manner. In addition to reducing energy consumption and greenhouse gas emissions, they can be used to better insulate buildings, reducing their use of gas, oil, and electricity.

Safety Compliance

10. Workplace and Onsite Safety conditions to meet as per ISO 45001 standards and long-standing workplace health and safety legislative framework, and voluntary document,
11. AS/NZS 4801:2001, *Occupational health and safety management systems - Specification with guidance for use*.
12. Design, materials and protection: To AS/NZS 4600.
13. Residential and low-rise steel framing: To NASH-1 (National Association of Steel Housing) and NASH-2 Standard.

3 EXECUTION

3.1 GENERAL

Preparation
Substrates or framing: Before fixing cladding check the alignment of substrates or framing and adjust if necessary.

Fixing
Method: Nail to timber framing, screw to steel framing.

Accessories and trim
Requirement: Provide accessories and trim required to complete the installation.

Proprietary systems or products
Requirement: Use panels and components from a single proprietary system and install to the manufacturer's recommendations.

Fixing eaves and soffit lining
Nailing: 150 mm centres to bearers at maximum 450 mm centres.

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

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

Incompatible metal fixings: Do not use.

0210 SLIDER CRANK MECHANISM

1.1 MATERIAL

4mm Square Bar, Galvanized Steel

1.2 DESCRIPTION

Galvanized steel is produced through the manufacturing process of galvanization whereby zinc is applied to steel offering protection and preventing rusting. The most common process is the hot-dip galvanizing.

1.3 QUALITY

In terms of quality, the process of galvanization ensures that it the steel can withstand oxidization (rust) making it an ideal material for the moving parts of the slider crank mechanism.

CHARACTERISTICS

Corrosion Resistance: It resists corrosion about 100 times better than uncoated steel, this is according to the American Galvanizers Association.

Surface Appearance: Galvanized steel comes with a matte gray appearance. Application of zinc coating through electro-galvanization creates a much smoother surface, allowing for a high-quality finish when painted.

Formability: The galvanized steel's zinc coating is crack resistant and does not lose its adhesive strength when the steel is formed into a product.

Durability: Special handling is not required during transportation as its resistant to abrasion due to its zinc coating.

Recyclable: It's as recyclable as other steel types.

SUPPLIERS

1) ARMADALE STEEL & INDUSTRIAL SUPPLIES4 Bessemer Road Forrestdale]
2) Di Candilo Steel City

LOGISTICS

6-meter-long steel bars are transported in bundles and are wrapped with fastening belts ever 2-3 meters. It can be loaded on standard trucks with special equipment.

SUSTAINABILITY

Steel is highly sustainable as it can be used for as long as possible once it's made. It can be recycled as many times as possible without losing its quality. As galvanization increases its (steel) robustness and resistance to corrosion, galvanized steel offers greater sustainability. Less natural resources and energy is required to either repair or repair the product the longer it lasts.

0250 WORKMANSHIP EXECUTION

1 EXECUTION

1.1 GENERAL

Storage and handling
General: Deliver panel to site in unbroken wrapping or packs. Store in dry conditions, a minimum 100 mm above the subfloor. Do not store on the subfloor until the moisture content of the subfloor is suitable for the installation of the floor. Do not store in areas with wet plaster or paint.

1.2 INSTALLATION

Trial set-out
General: Prepare a trial panel set-out to each area as follows to:

- Maximise the size of equal margins of cut panels.
- Locate control joints.

Control joints
General: Provide control joints as follows:

- Against vertical building elements: 12 mm wide
- To divide floors into maximum dimensions of 6 m: 4 mm wide silicone sealant filled.

2 EXECUTION

2.1 SUPPORT FIXING

Battens for strip flooring on steel joists
General: Screw fix seasoned battens along the steel joists with countersunk screws so that their top surfaces are aligned.

2.2 FIXING CONTROL JOINTS

Room environment
General: Fix flooring in the average in-service environment. During fixing operate the heating system of radiant heated or air conditioned rooms at 1.5°C above normal maximum temperature.

Control joints
Perimeters: Provide 10 mm wide expansion joints against vertical building elements.

Adhesive fixing
Strip flooring: Use a polyurethane elastomer adhesive in addition to nails.

Mechanical fixing
General: Make sure base are in contact with the subfloor at the time of fixing, particularly where modules are machine bolted. If screws are to be less than 12 mm from ends of boards, pre-drill screw holes 0.5 to 1 mm undersize. Top screw: For spacer of 65 to 130 mm cover width, use two screws.