

A photograph of the Te Ahu Centre in Kaitaia, New Zealand. The building is a circular structure with a prominent orange-brown curved upper section and a glass-enclosed lower section. The glass reflects the sky and surrounding environment. The building is set against a blue sky with scattered white clouds. A dark blue banner at the top right contains the text 'Te Ahu Centre, Kaitaia'. At the bottom, there are three banners: a dark blue one with 'KAITAIA GLASS & ALUMINIUM', a white one with the 'FIRST WINDOWS & DOORS' logo, and a dark blue one with 'METRO GLASSTECH'.

Te Ahu Centre, Kaitaia

KAITAIA GLASS & ALUMINIUM

FIRSTTM
WINDOWS & DOORS

METRO GLASSTECH



Project: Te Ahu Centre

Location: Kaitaia

Glass provider: Metro GlassTech, Allan Sage, Grant Roberts

Aluminium Fabricator: Kaitaia Glass and Aluminium, Kevin Wilson

Architects: Beard Parsonson Architecture, Doug Beard, Joey Parsonson

Construction: KPH Construction Limited, John Whitlow

Te Ahu Centre - The Glassman's story

Early in 2010 and “out of the blue” I get a call from Kevin Wilson at Kaitaia Glass and Aluminium saying he has a local architect that needs help with a structural glass wall – In Kaitaia – Really!

Next thing Doug Beard and Joey Parsonson, are in my office in Auckland with Kevin, and they lay out preliminary details of 20m diameter building with 8m tall pleated faceted structural glass atrium wall. And not to be out down by the city folk they have a circular internal walkway with a balustrade and glass floor. - Simple stuff for Kaitaia!

The project turned out to be the new Te Ahu Centre which houses the District Council office and library and doubles as a museum with a large atrium area for the Far North people to enjoy.

As with all dreams, reality is not so easy, especially when no one wants to pay for the design and engineering and the budget is as short as the lead time. However Metro GlassTech in conjunction with AGA in Australia devised a preliminary design and budget, and then worked with the architect to get the complex steel structure designed and engineered to suspend the 8m high wall.

The final atrium design is an 8m high two tier pleated suspended structural glass wall using 12 mm grey TempaSoak Safety Glass. The wall is hung from the top ring beam and laterally supported back to the central ring beam at the skywalk level using special angled spider fixings and connection spars.

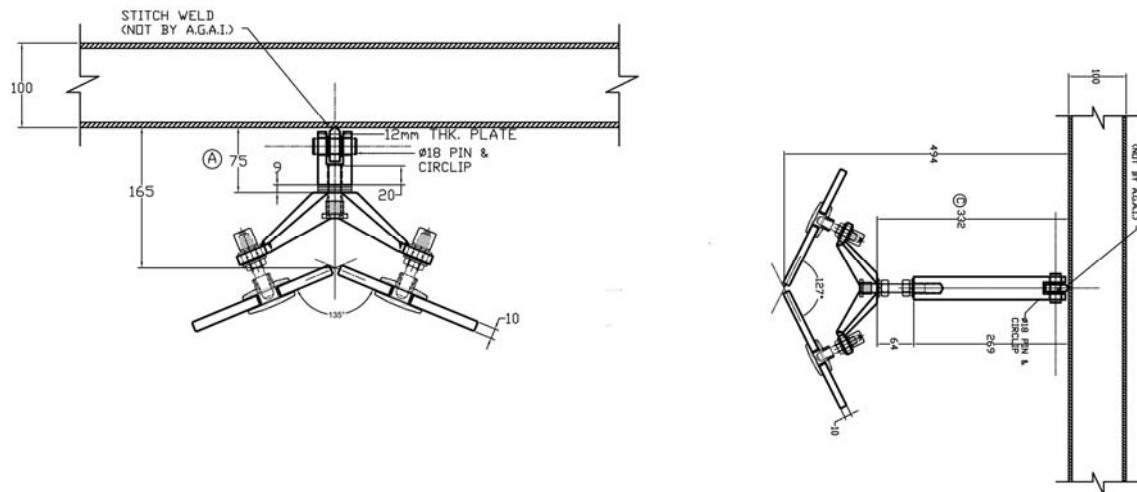
A late edition was a 6.2 m high, 2.5m radius, faceted structural glass stairwell. Metro GlassTech designed a two tier spider fixed system with a 12 mm clear TempaSoak safety glass and a dot printed toughened laminated sloped roof.

During the process the glass changed from printed glass to blue, to green, to clear then to grey, plus the joints and connections changed. The pleated wall joint line changed to suit the walkway structure and the glass length went to 4300 mm so it had to be processed in Christchurch, sent to Auckland for Heat Soaking and then to Kaitaia for glazing. (Let's not even mention the glass that was smashed in the earthquake).

The Project was lead by Auckland Metro GlassTech's Auckland Contracts Division and their “Northland Boy” Grant Roberts. Kevin Wilson and his team designed a special sill section to allow air to flow into the atrium and fitted all the perimeter channels and flashings. Kevin Forgeson and his Metro GlassTech glazing team then did an amazing job of a very precise set out and installation, considering the

pleated wall had different internal and external angles and the glass edges were mitred to provide a high quality structural joint. Then the MFG team completed the process of glazing the walkway point fixed balustrades, with 12mm TempaSoak safety glass, using MB50 disc fittings

Two years later in early 2012 – we have the finished building which is an outstanding example of design collaboration between the architect, builder and glazing contractor, proving that trust, respect and team work does work.



Brief from client:

The Te Ahu project started out as a refurbishment of the existing Kaitia Community Centre and Theatre which then led onto the construction of a new facility for Kaitia which now incorporates a new purpose built District Council Office, Library, Museum, I Site and Atrium area for the people of the Far North to enjoy.

Uniqueness of the project and the products used.

The building work was carried out by KPH Construction Ltd, a local building company with over 40 years building experience.

The refurbishment of the existing Community Centre and Theatre consisted of replacing all the existing aluminium joinery with a combination of both APL's 100mm commercial suite and First Windows and Doors.

The new construction of the Te Ahu building which was joined onto the existing buildings. The joinery used is a combination of 100mm commercial windows and doors, Automatic frameless glass doors, frameless glass shopfront windows and doors, glass balustrades and Metro GlassTech's top hung glazing system with a specialised lower venting system designed by Kaitia Glass and Aluminium,

The plans were done by Doug Beard and Joey Parsonson of Beard Parsonson Architecture and incorporated a unique combination of concrete tilt panels and curved steel portals and ring beams coming together to form the main atrium and offices.

After taking Doug and Joey to Auckland to meet with Allan Sage of Metro GlassTech, they were able to formulate a final design for the Atrium and how the glass would be installed. This design incorporated a circular steel structure marrying into a faceted glass structure.



This resulted in a design with 8m high pleated glass hung from the top ring beam with steel clamps. The glass is supported in the centre by stainless steel spider fittings and glazed into a specially designed sill section which incorporated vents to allow air flow into the atrium area. The panels are 12mm grey tint toughened glass with the vertical edges joined together with structural silicon. The effect of the grey tinted glass in the atrium area is stunning.

Another feature is a the glazed stairwell using the Metro GlassTech glazing system with incorporated glass walls and roof joined together with the spider fittings. In the Atrium area there is

a mezzanine walkway which follows the curve of the Atrium. On both sides of the walkway is 12mm toughened glass balustrade panels fixed to the steel ring beam with MFG MB50 stainless steel fittings.

In other parts of the project 100mm APL commercial joinery was installed into the concrete tilt panels with Horizon Dorma automatic door units installed in the two entry areas. A feature of the entry areas is the faceted joinery with the auto doors also faceted.



All the APL 100mm commercial joinery, automatic doors and internal frameless shopfront doors and windows were supplied and installed by Kaitaia Glass and Aluminium. The Metro GlassTech glazing system and glass balustrades were installed by Metro GlassTech in conjunction with Kaitaia Glass and Aluminium.

Merits of the construction

This project was a community project with the brief that it was to involve as many local contractors as possible and where required, outside help was called upon as is the case with the Atrium glazing and balustrades on this job

The mixture of standard commercial joinery combined with custom built joinery to suit every facet of the job has been outstanding.

In this project the following joinery features were used.

- Metro GlassTech, specially designed faceted top hung glass panels with spider fittings.
- Faceted glass following a curved wall.
- Stairwell glazing consisting of faceted panels with a glass roof.
- 12mm toughened glass balustrades
- APL 100mm commercial shopfront windows and doors. These incorporated both panic release locks and automatic window openers.
- Faceted automatic glass entry doors
- Frameless glass internal shopfront windows and doors.

The whole project was a credit to all those who worked on it. On the opening day there was an early morning opening and when the doors were opened the guests filed into the main atrium area which is the crowning feature of the whole project and the atmosphere was electric. Everybody who has been into the atrium has been awe struck with the overall effect of the glass, lighting, acoustics and overall ambience of the building.

This building is a credit to the people of the Far North. The Atrium design is a one off with nothing else similar to it in New Zealand

In 2009 Beard Parsonson Architecture completed the final approved concept design for the Te Ahu Centre – Kaitaia.

There are several outstanding features of the building and the most notable and prominent feature is the 8 metre high pleated glass walls that wrap around the 20 metre diameter circular Atrium and which has two “eye” shaped fully glazed entrance vestibules with sliding glass doors.

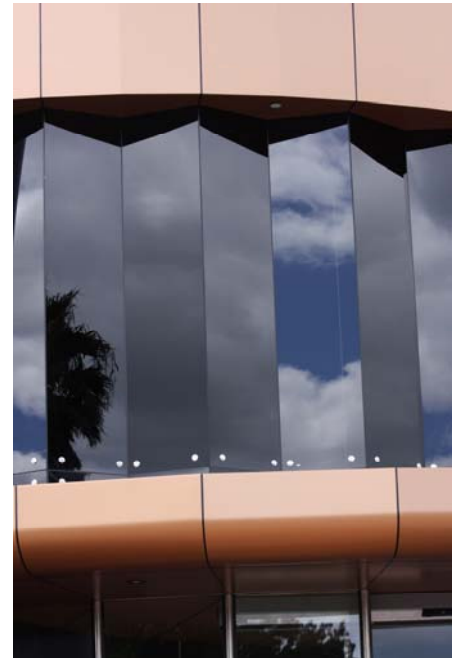
A circular walkway is located approximately at mid height of the atrium and apart from providing access for the public to circulate, it is also an important structural element used to stabilize the steel frame of the atrium and also to provide lateral support from wind loading to the glass wall.

Because the glass wall is “pleated” it provides various beneficial and interesting effects, playing with external and internal reflections, helping to break up acoustics as well as reducing solar gain due to the “reflective properties of the angled glass surfaces.

Due to the complicated arrangement of the glass wall we worked closely with Allan Sage of Metro GlassTech, an Auckland based company and Kevin Wilson of Kaitaia Glass in Kaitaia. From the very beginning, we were impressed by their professional and co-operative approach.

Metro GlassTech had the solutions and expertise that we needed and together we worked to develop a system based on details and information provide by both companies.

The glass walls are suspended from a circular “hoop stress” beam which was based on ideas developed by Allan Sage and his team at Metro GlassTech. The glass panels are each in two sections and supported at the centre using stainless steel “spider” connectors. Passive ventilation is provided by a skirting vent which was developed by Kevin Wilson of Kaitaia Glass and Aluminium.



The tolerances required to ensure that the top and bottom of the glass walls engaged accurately with the upper structural supports and the “pleated’ concrete floor at the base was less than 2° and as a result extremely accurate laser



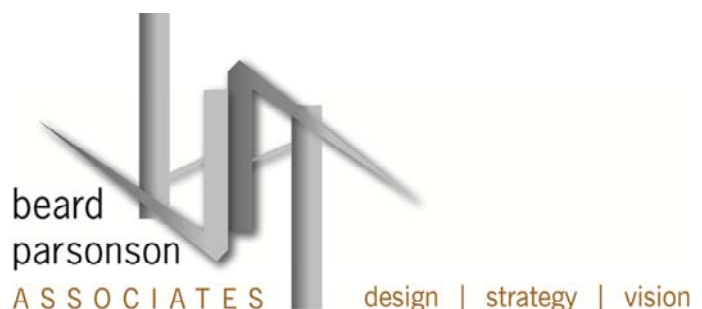
measurements were taken by Metro GlassTech engineers.

The results were outstanding and when the glass was installed it went together exactly as planned.

The final result is a testimony to the co-operation we had working with these two high profile companies and in particular Allan Sage, and

Kevin Wilson and their engineering teams. We would not hesitate to work with them on similar projects.

Doug Beard.
Joey Parsonson
Beard Parsonson Architecture



Challenges, solutions and outcome

At concept design it was very obvious that the construction of the glass atrium, walkway and stairwell was going to be a really complicated area.

The designers spoke with Kevin from Kaitaia Glass and Aluminium regarding this and he put them in touch with Allan Sage from Metro GlassTech in Auckland.

A series of meetings followed and with input from AGA in Australia the initial design concept developed into reality.

During construction a number of challenges were met, not least of all, the Christchurch earthquake which smashed most of the glass before it had been toughened and the program had to be changed. As a result only 12 mm grey was available so the glass was changed again.

Because of a design change the final length of the bottom tier changed and the only furnace long enough to toughen the glass was in the South Island.

The steel structure was complex and the tolerance for glass connection was critical, so the fabricators and installers did a good job.

The stainless steel “Spider Fittings” were originally going to be cast to the angles but due to the time frame they were modified by AGA to a Metro GlassTech’s design.

No problem seemed to faze the glazing crew and in a month the final panes were installed, and the joints sealed.

There were a number of highly problematic flashing details but the team took it all in their stride and we now have a watertight glazing system.

In the following months templates were made for the stairwell glass roof and wall and glazed along with all the auto doors forming the airlocks to the building.

What has resulted is the magnificent Te Ahu Centre and everyone that sees it is awe struck but its design and construction.

What has really come to light is the superb acoustics due mainly to the faceted glass around the atrium

Media coverage

2 March 2012

Governor General Sir Jerry Mateparae and Lady Janine Mateparae have accepted an invitation to officially open the new Te Ahu Centre at Kaitaia.

Reference: www.teahu.org.nz

NorthernNews

Deputy Mayor Ann Court says Te Ahu is just amazing.

"It will become the heart of Kaitaia. Thank you to those people who had the vision to create something that is not only functional but a work of art as well."

Hokianga-Kaikohē ward councillor Tracy Dalton is equally impressed and praised everyone involved in the project.

"Te Ahu is a fantastic community complex. The concept has been inclusive and the result is very attractive."

Reference: www.Stuff.co.nz

The Blessing of Te Ahu

March 7th, 2012

At 5:30am, Friday 10 February, we gathered outside the new building. Around a hundred souls, representing the 7 iwi of the Far North. It was very dark, surprisingly warm, and the sky was a glittering sea of stars.

Haami Piripi and his granddaughter, both in korowai, took us through the doors, chanting karakia as we went, blessing the building and offering it as a taonga to all of us.

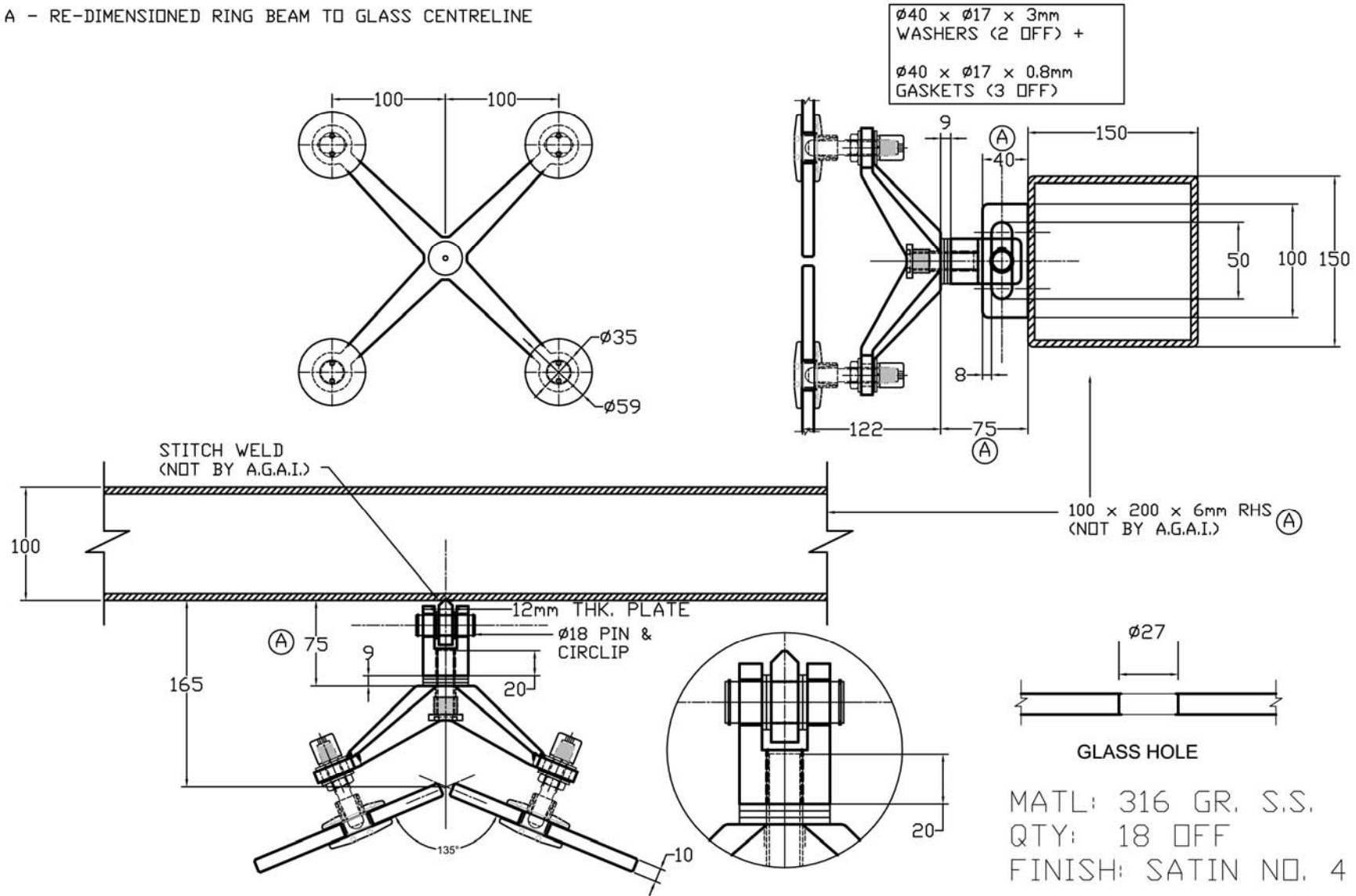
A powerful start to a weekend of finishing touches for the new Te Ahu Centre in Kaitaia.

The Centre opened to the public on Monday 13 February.

Reference: Story Inc



REVISION A - RE-DIMENSIONED RING BEAM TO GLASS CENTRELINE



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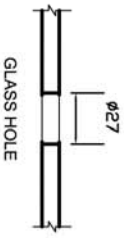


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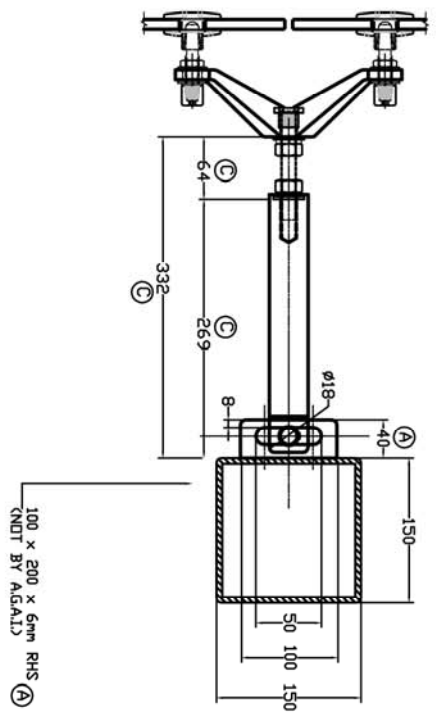
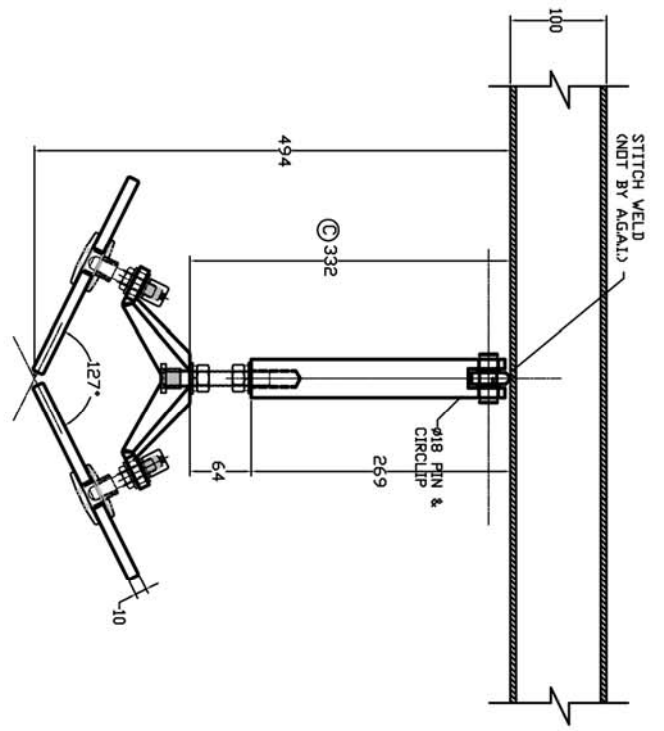
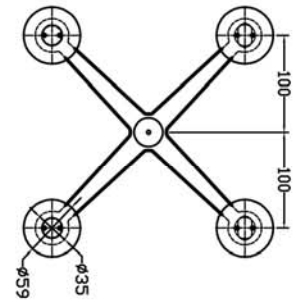
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