



## Meridian 5 Star Green Building

Developer Client: DNZ Property Group, Wellington Waterfront,

Key Tenant: Meridian Energy Limited

Project Manager: Mallard Cooke Limited

Contractor: The Fletcher Construction Company

Architect: Studio Pacific Architecture with Peddle Thorp Architects

Publication Date: January 2009

Region: Wellington Waterfront

Sector: Commercial, Offices

Total Project Value: \$30m

Project Construction Timescale: Jan 2006 to Oct 2007

Form of Contract: Special based on NZS 3910

**The new Meridian building, New Zealand's first new build 5 Star green building sits on the Wellington Waterfront.**  
Photograph provided by Simon Devitt Photographer

**The 5 Green Star Meridian Building, the first purpose built office building to be rated under Green Star ratings, sets a new benchmark for energy efficiency and sustainable building practice in the commercial office property sector. With 4000m<sup>2</sup> of office space over three levels plus ground floor retail, the building stands out in its iconic setting as a flagship project that those involved are proud to be associated with.**

### Background

The Meridian Building was designed before the New Zealand Green Building Council, (NZGBC) had been established at a time when an environmental agenda was still off the radar screen for most people. However, the architect convinced Wellington Waterfront Limited and the Wellington City Council (WCC) that they should lead from the front as responsible landowners and developers and adopt environmental design principles.

Concurrently Meridian, seeking a long term accommodation solution for its head office, began approaching the market to identify a building that met its goals for cost effectiveness, user experience and ecologically sustainable development.

What was ultimately delivered was a building and urban environment that was destined to change New Zealand's commercial office development industry for the better.

As the project evolved, the story initiated by the architect became integral to the other players. One by one, the Developers, the Council, the Contractor and supply chain understood the importance behind the story and became advocates for building sustainably. The message was clear and people understood how their efforts would contribute to the outcome - to the point where labourers felt part of it and were willing to change behaviours for example actively reducing waste. People were proud to be working on the building.

Sustainability issues went beyond environmental where social sustainability was considered through planning and design of an urban square. Wellington Waterfront retained the head lease of the ground floor space and have let the individual tenancy's to include a mix of use that support the public space in and around the building and provide a life and vitality of the ground floor.

### Successful Outcomes

Along with cost, time and quality performance indicators, whole of life and a full performance specification related to environmental outcomes were core to this project.

### Selecting the right team

Team members, consultants, contractors and sub contractors were selected on their skills, experience and quality of work rather than on price alone.

Fletcher Construction was invited to join with DNZ Property Group as "preferred contractor". Fletcher offered both negotiated and tender work packages depending on how well advanced the design documentation was at each milestone. One advantage was that the whole project team was based in Wellington and meant that when issues arose they could be dealt with the key members of the project team who were all Wellington based. This allowed quick response to any issues.

## Collaborative Approach

The team took a collaborative approach, supported by a high degree of transparency within the Project Control Group. The PCG was led by Andy Mallard of Mallard Cooke representing the owner DNZ Property Group, which included the Project Directors from Meridian (Shane Gray) and DNZ Property Group (Phil Brown) and members of all design disciplines as well as the main contractors.

The flat hierarchy between the team made it easier to communicate with each other. *“Communication was very easy – this helped us to pick up issues as we went along so that there were no surprises”* Stephen McDougall, Studio Pacific Architecture.

Shayne Gray, Meridian reaffirms this by stating *“one of the key features was the high degree of communication between all the parties, this was particularly apparent in terms of problem solving, where if issues came to light we sought to solve them rather than blame”*.

The key players respected each others knowledge and were willing to listen to each other. *“The architect was 100% committed to the project and always willing to sort things out”* Richard Cameron, Fletcher Construction. *“We enjoy working with Fletchers, because of their collaborative and open approach.”* Stephen McDougall, Studio Pacific Architecture.

## Alignment of project goals

This was fundamental to the project’s success. The Contractor made certain that they knew what the architects and owners key objectives were in order to ensure that they delivered on those. *“Alliance is what probably made this job successful – we became a team, who all focussed on the one thing and went beyond the norm to realise it”* Richard Cameron, Fletcher Construction. The ‘alliance’ was an informal agreement outside of the contract and relied on the Project team to deal with issues as they arose. *“We knew we had to be flexible and we all went on and did it – everyone was prepared to give and take a bit”* Richard Cameron, Fletcher Construction.

## Summary of Benefits

A high degree of collaboration was required to realise this building, where the boundaries between structure, materials and services merge and the building operates as a cohesive system. It could not have been achieved with one person only believing in the vision towards sustainability. It needed buy-in from everyone involved, to make the story into the high quality, environmentally and socially responsible building it is today. *“This was a really enjoyable project, and I know for a fact that those that worked on the building are proud of it. We did a good job, and we always get good feedback from people – partly because of design and partly the quality of the building”* Richard Cameron, Fletcher Construction.



Artists view looking across Kumutoto plaza to building entry: Image Stantial Studios

## Forward planning

Extensive front end planning was undertaken at the design and construction stages of the project and involved material selection, waste management, health and safety issues and reaching commissioning targets. Fletcher Construction created work plans particularly around specialised aspects of construction to take into account potential hazards. Logistics were considered in analysing safety procedures, for example, the southern façade precast panels, which weighed 8-9 tonnes, had to be lifted into the building with minimal tolerance, without being snapped and with public and site safety ensured.

## Tenant plays key role

A significant role was played by Meridian. As the major tenant they knew what they wanted to achieve and set out to clearly define their requirements prior to approaching the market for a solution. It was important that their offices demonstrated an intrinsic link between their brand and the organisation’s commitment to sustainable development.

As part of this, the Project Manager trained to become an accredited Australian Green Star Professional and Meridian also sought advice from experienced professionals and spoke with other building owners who had embarked on a similar path.

This resulted in the creation of a Performance Specification which became the anchor stone for all decisions during documentation and construction. The Performance Specification informed all decisions and gave a high level of confidence that the outcome would match expectations.

By taking these steps, Meridian took the green initiatives already put in place by the architect to a new level. *“Meridian knew very early on what they wanted and how it was to work. They had done quite a bit of research, which was a big advantage from our point of view. This was reinforced as the design progressed – Meridian was active in the whole process and double-checked that what they wanted was being delivered.”* Richard Cameron, Fletcher Construction.

Decision-making was made easier by having an informed tenant. This was crucial due to the fast track nature of the project.

### Clarity of expectation of outcome

The Performance Specification provided clarity to the team, as they knew what they had to deliver. It stretched the consultants and contractor to go beyond previous experiences. It was incorporated into the terms of agreement for the lease and set a new benchmark in commercial development in New Zealand.

The specification included 21 defining aspects supported by 104 performance objectives and covered the spectrum from energy efficiency, water use to achieving a healthy and productive working environment. When the NZ Green Star Rating Tool was formed, it was easy to compare this information and obtain a 5 Green Star Rating.

This level of clarity was also prevalent during construction. The supply chain knew the importance of achieving not only a sustainable outcome but also the process and knew how their efforts would contribute to it.

### Early involvement of the Contractor

Given the nature of this building it was particularly important to have a high degree of integration between the disciplines. The project team took a holistic approach and worked together to find solutions. As part of this, by the end of 2005 Fletcher Construction provided construction expertise during the development of design documentation, particularly around the buildability issues. *“Having Fletchers on board as part of the design process allowed more innovative thinking around construction techniques”* Andy Mallard, Mallard Cooke.

The building was fast tracked. Fletcher built the foundations whilst the consultants completed documentation.

### Cost management

To meet Meridian’s objectives, DNZ Property Fund committed to the Project on an initial cost analysis and feasibility. To help deliver this, the developer, the tenant and the project team were in constant dialogue. Fletcher Construction priced the building as design progressed then engaged with the team in a value engineering process, which was managed by Mallard Cooke. Savings resulting from the value engineering process were adopted as long as they were cognisant of their impact on the performance specification.

A single consolidated project risk register was established during a workshop identifying the risks and thereafter managed by the Project Manager, Mallard Cooke. This was particularly crucial as the risk profile becomes greater when the design progresses at the same time as the building.

Overall Project costs were communicated and managed by Mallard Cooke with Maltbys looking after construction contract related pricing and DNZ Property Group overseeing finance related aspects. Throughout the design and construction phases Maltbys managed all construction related costs such as tendering, the compilation of the Contract Price and the agreement of all variation pricing. The building was delivered within budget.

### Key Client Actions

Wellington Waterfront (WW) was fundamental to the success of the project. According to the architect, *“if it weren’t for their experience and knowledge this project would not have happened”*. They made key decisions, such as listed below that enabled the project to be realised.

Areas where the client directly and positively affected the outcome of the project for all, included:

- **Early Consent:** Wellington Waterfront’s (WW) derisked the project by gaining Resource Consent and a key tenant before attracting a Developer
- **Communication Strategy:** A joint communication plan was agreed early on for the project which covered key aspects and protocols associated with the stakeholders – being DNZ, Meridian and Wellington Waterfront.
- **Consultation Strategy:** Consultation strategy: Created a transparent process which included informing the community
- **Fostering commitment to Sustainability:** *“DNZ were 100% behind the project and what it stood for – beginning with the performance specification and then adapting that to gain a 5 Star rating”* Andy Mallard, Mallard Cooke.
- **Taking Risks:** DNZ Property Group recognised and accepted that the building may have represented a zero net present value project at date of commitment but were prepared to accept that risk and return while having the contractor confidence and tenant pre-commitment.
- **Performance Specification:** Their commitment to deliver on the Performance Specifications that Meridian had established



*Meridian Building South West corner, looking along the lane from Wharf Plaza. Photograph provided by Simon Devitt, Photographer.*

## Key principles for repetition

- Experienced and informed developer, client and tenant
- Developer and tenant active in whole project delivery and in all key decisions.
- Decisions were made in a timely and clear manner
- The approach to design and construction was integrated
- Early contractor involvement in design development documentation
- Open and clear communication
- Good forward planning
- Well structured and concise tenant performance specification.
- Single consolidated project risk register
- Waste management practice during construction
- High level of Health and Safety procedures
- Commissioning plan and monitoring of building for 24 months
- Integration of fitout and base build works to avoid wastage and redundancy work.
- One software package for the Building Management System (BMS) was developed to run the whole building. The intelligent BMS included control of lighting, louvres, security, energy efficiency, water usage and is directly connected to Met Service.

## Time

The building was not fully detailed prior to construction and was built to an aggressive timeframe. The tenant was aware of the need for timely decision-making and knew that decisions could not put the project at risk.

Construction commenced on time, and the project team met all the key milestones and was completed on time. Practical Completion was granted on the 27 September 2007 as was the Code Compliance Certificate which was granted prior to the handover. This was quite an achievement, considering the fast-track process, the constrained construction site and the reclaimed land.

Complexity was compounded by the surrounding landscaping and infrastructure work being undertaken concurrently for the Kumutoto project.

**Meridian Building, South Facade.** Photograph provided by Simon Devitt, Photographer.



## Quality

All those interviewed agreed that the quality of the workmanship was excellent. Only minor defects that did not impact on the function of the building were listed at Practical Completion. All defects were quickly and efficiently resolved.

## Health and Safety

One of Fletcher Construction's primary considerations is achieving safe sites. *"It is one of Fletcher's policies; as an industry the more experienced contractors are taking health and safety seriously"* Andy Mallard, Mallard Cooke. Here they practiced excellent health and safety procedures. What was also observed were the positive side effects this practice has, such as greater levels of productivity due to a cleaner site. Ultimately this will become part of standard practice within the industry. *"If we have a safety issue on site, then we do not consider the job successful, no matter how awesome the building"* Richard Cameron, Fletcher Construction.

## Waste Management

Fletcher Construction was keen to extend its waste management procedures, *"we had the will, right through to the carpenters and labourers, who got right behind it"* but did not initially have systems or set targets in place. URS was engaged on behalf of the Ministry for the Environment to help establish systems with Fletcher around REBRI (Resource Efficiency in the Building and Related Industries). Toolbox talks involving the supply chain were organised to help inform everyone on how they could contribute to realising best waste management practice. Every skip and bin that went out the gate was measured. Waste management included timber and Gib board being mulched. They also diverted waste to be reused on other sites. Overall 60% of waste was diverted from landfill. Waste management is now part of Fletcher's ongoing works programme.

## Sharing of Knowledge

All those interviewed were willing to share knowledge so that others can benefit. This is evident with both Meridian and Studio Pacific Architecture. Meridian was willing to release its Performance Specifications and create a website outlining their process which would be considered by many to be key IP. Studio Pacific Architecture released their technical drawings for the façade treatment, as their philosophy is *"we are not being protective of IP that goes with the technology of the building, if someone can learn from it and do better, than that is good for everyone"* Stephen McDougall, Studio Pacific Architecture.

## Community involvement

Wellington Waterfront was willing to be transparent and proactive in keeping the public informed of the design from the start of the process. This included a permanently set up Port-a-com on site with up-to-date drawings and models. A team including the architect were there most weekends and public presentations were held at critical stages.

## Lessons to Share

Key lessons to take forward from this project are:

- **Establish Key Drivers:** It is important for a tenant to establish their key drivers and create a strategic framework around these to take the project forward. The team need to know what is important otherwise it is difficult to achieve a satisfactory outcome.
- **Lifecycle Assessments:** More life-cycle analysis assessments carried out in the industry will make it easier to make decisions on the worth of additional short term costs over the long term.
- **Forward Planning:** The building required more forward planning than a typical build. There were new things to investigate and put into practice, for example, the waste management practices introduced.
- **Design Input:** The building was complex and in hindsight, needed a higher level of design input prior to commencing construction than is typical on a traditional office building. Progress the design further prior to pricing it. On this project, the team had to reprice and value engineer six months into the work. *“I’d like the gap between design and before you start construction to be wider, rather than concurrent with construction. The design needs to be uncoupled from construction, particularly in such a complex sophisticated building where two dynamics are at play – one the design trying to stay ahead of construction and secondly managing the costs, as managing the costs is managing risks”* Andy Mallard, Mallard Cooke.
- **Early Commissioning:** Building commissioning is critical for any building, but is becoming more complicated in sustainable buildings as the level of integration is complex. A greater degree of emphasis is needed to ensure that the commissioning is rigorous and for at least a 24 month period, as the building learns how to work and react to its environment and the people that occupy it. *“Green Star require 12 months, but I feel this is insufficient as this only accounts for one set of seasons. The building needs to bed down and the users become familiar with it. I think you need 24 months to be sure that what you have tweaked in the fine tuning is working”* Andy Mallard, Mallard Cooke.  
  
Another point around commissioning was to start the process from day one i.e. when the Contractor starts on site. Create a well understood commissioning plan, which identifies all aspects such as drainage. This requires continuous monitoring throughout construction. As part of this, Fletcher Construction had the building running two months prior to the tenants moving in.
- **Energy Reports:** every three months since occupation, Meridian and BECA (the building services engineers) undertake an energy report to check performance criteria are being met

## Possible improvements

- Spend more time on the design and drill down into the detail far more than currently undertaken. Allow for more front end planning during the design stage – separate from construction phase.
- Prior to the Performance Specification becoming binding, have workshops/open discussions with the Project Team to discuss interpretations of meaning, as expectations from the different parties did not always line up. From a project management point of view, this helps to gain a better understanding and greater alignment between the parties.
- The NZ construction industry was not always able to deliver on sustainable specifications, e.g. amount of recycled content in the cement. Construction projects demanding these specifications will act as a catalyst for change.
- Intrinsic to the industry moving ahead sustainably, is the need to monitor more buildings, especially older stock, particularly the mechanical plants. It is important to have good maintenance and building management systems in place. Substantial energy savings could be made throughout the country.

## Conclusion

Meridian set out to occupy a building that reflects its philosophical values, particularly in a commitment to sustainable development. This building has achieved the objective to such an extent that it acts like a ‘spokesperson’. It markets Meridian without the need for large signage. People know this building and what it stands for. A success story which, due to its iconic location on the Waterfront CBD was a significant risk for Meridian if the building had under-delivered.

## Useful websites:

<http://www.mfe.govt.nz/issues/sustainable-industry/govt3/topic-areas/sustainable-buildings/contract-documents.html>: The Performance Specification is readily available on MfE website.

[www.meridianbuilding.co.nz](http://www.meridianbuilding.co.nz) : Meridian has developed a website, that contains interviews, animated features and explains the technology being used.

[www.rebri.org.nz](http://www.rebri.org.nz): for information and strategies for on-site waste management

[www.mfe.govt.nz/publications/waste/water-strategy-mar02](http://www.mfe.govt.nz/publications/waste/water-strategy-mar02)

For further Pathfinder information visit [www.constructing.co.nz](http://www.constructing.co.nz)

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