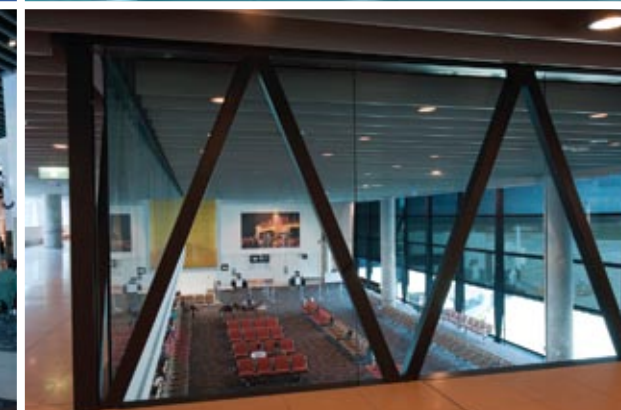


MELBOURNE AIRPORT STAGE 2

MAIN CONSTRUCTION COMPANY : John Holland
DEVELOPER / CLIENT : Melbourne Airport
PROJECT MANAGER : Root Projects Australia
PROJECT END VALUE : \$330 million
COMPLETION : 2011
ARCHITECTS : Architectus
QUANTITY SURVEYOR : WT Partnership



FLYING INTO THE FUTURE

There's no time like the present for future-proofing a major aviation gateway like Melbourne Airport. The recent expansion of Terminal Two and associated works represent part of an overall vision involving the largest capital investment in infrastructure since the Airport was first built 40 years ago. For CEO of Melbourne Airport, Chris Woodruff, the multifaceted plans embody a passionate commitment to travellers, airlines, Melbourne itself, and the Victorian and National economies.

"Over the last 15 years, Melbourne Airport's passenger numbers have more than doubled from 13 million a year to 28 million a year. If we look forward 10 years, it is going to be more like 40 million a year. We have to make the investment in infrastructure ahead of demand. We are looking at 10, 20 years ahead and have very detailed and mature planning in place to accommodate future growth," said Chris.

"Melbourne's growth rate for international passenger numbers is ahead of the world average. It is ahead of Sydney. The expansion of the international terminal gives us capacity for the coming years."

"We are geographically fortunate with our neighbours as they are the great Asian countries including Malaysia, China, Singapore, Indonesia and Taiwan. These countries will drive future economic growth. Going forward, it will be more about the Asian growth story. We

expect in five years we will be seeing more Chinese passport holders than New Zealand passport holders."

"The industry needs to get its head around the Asian growth story – do we speak the language? Is the signage in place? It's about making people feel welcome when they arrive, and then also having them leave saying positive things about their experience."

Melbourne Airport has introduced a number of initiatives to welcome Chinese travellers, with signage and public address announcements in Mandarin and training for front end staff in basic Chinese cultural protocols.

"The airport is the first thing foreign travellers see of Australia, and we are seeing more and more first-time travellers. When we think of the border controls – immigration, customs and quarantine – these processes are likely to be quite alien to some people. How we explain these things to people is very important. And we know aspects like whether their transport – such as a coach – can connect to the airport easily are important. We want all those travellers to go back to their country and extol Melbourne, Victoria and Australia. That's why we are doing this," explained Chris.

New facilities constructed during the T2E project include five new aircraft parking bays, three with dual aerobridges to host the Airbus A380, the

Boeing 787 Dreamliner and the A350. There is 5000m² of new retail space, with a design which offers a brilliant taste of Melbourne's unique, quirky style, and includes offerings from some of Melbourne's iconic eateries.

There is a much larger security zone, abundant natural light and better queuing systems which combine to make it a more comfortable space for travellers. As with all of the Airport's new facilities, a degree of future proofing ensures that as new, improved security technologies come into use, they can be incorporated.

The new baggage systems reflect management's passionate approach to delivering essential services to passengers in the most efficient way. The new system has been designed with the capacity to meet the needs of years of growth in passenger numbers.

The next stages of work at the airport will include new check-in desks, additional aircraft parking bays, a new arrivals area and a sixth inbound baggage carousel.

Beyond the needs of future travellers and the airlines, Melbourne Airport is also considering the needs of the future of the environment, with a number of initiatives designed to make Melbourne one of the most energy efficient international terminals in Australia. These include a highly efficient in-floor hydraulic heating and cooling system, automatic blinds, extensive re-use of concrete in construction, and rainwater harvesting systems.

With 12,500 employees working at the airport, the ongoing expansion has been good news for the entire community of north western Melbourne. At the initial groundbreaking, five City Mayors and the Melbourne Lord Mayor all joined with Federal Transport Minister, Anthony Albanese, to show their support for the project.

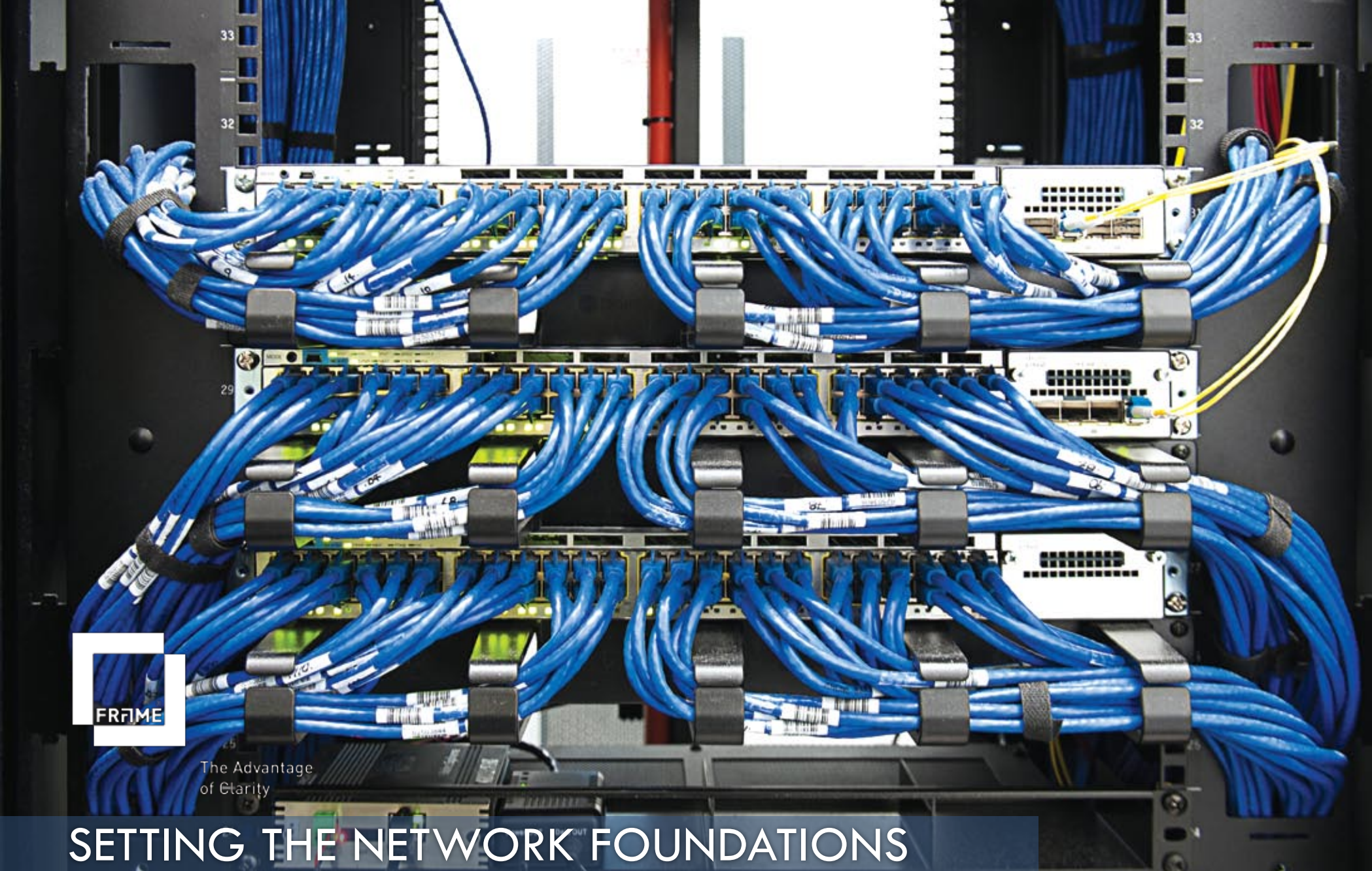
"We are really passionate about corporate social responsibility. We join in with our local communities, such as Broadmeadows, to boost local employment because we know we can make a difference. Our growth creates growth prospects for the whole community," said Chris.

"I feel the Federal Government is doing a great job of negotiating air rights ahead of time. The new aircraft that airlines are adding to their fleets are uniquely suited to coming to Australia.

"We think the next big growth story will be India. Air India is commencing services to Melbourne Airport soon, which will be the first direct Australia-India route."

Airside is not the only major investment focus for Melbourne Airport, with \$100 million of their own funds earmarked for a significant on airport roads upgrade over the next few years.

Overall, Chris Woodruff estimates Melbourne Airport will have spent 'the thick end of \$1 billion' over the next five years, giving one of the world's most liveable cities one of the world's best aviation gateways.



The Advantage
of Clarity

SETTING THE NETWORK FOUNDATIONS

Behind the scenes of the John Holland construction program for Melbourne Airport, the Terminal 2 expansion, the airport's IT department played a critical role. Melbourne Airport engaged The Frame Group to design, develop and implement a secure, stable and reliable network.

The network is the foundation of not just the airport's communications systems, but also the backbone for the security, surveillance and car park systems. It is deployed across the campus to provide access for all tenants, business partners and airlines and is essential for the display of passenger and flight information.

Design and implementation of the network has been no small task.

Frame worked with the architects to ensure the appropriate technical framework was literally built into the construction. Unlike most IT experts, many of Frame's specialists are familiar with the rigours of construction. Project management knowledge, and an insider's grasp of the construction process and milestones, informs Frames work, making its team effectively an extension of the core construction team.

In the background, Frame worked with Melbourne Airport to align its ICT (information and communications technology) strategy with its business strategy, drawing up a twenty-year ICT plan. The first stage of ICT development began in late 2007 when Frame designed and deployed a new

multi-protocol label switching (MPLS) carrier-grade network as the backbone to support the terminal expansion which included new inbound baggage facilities, passport control and security screening areas.

During the second stage, completed in 2009, conceptual and detailed designs were carried out and then implemented in conjunction with the terminal's construction, to provide the infrastructure for the new gates. The focus was to create reliable communications and a scalable, robust network.

Significantly, the MPLS network enabled the airport to consolidate the ICT services it provides to internal and external users, such as tenants, in order to reduce operating costs. To do this, Frame implemented its enterprise service provider (ESP) framework: putting the focus on managing services (like wireless and email) rather than their infrastructure components in isolation (servers, routers).

The ESP framework has enabled the IT department to start generating revenue for the services it provides, helping to fund the cost of the network.

With MPLS, the phone, computer, TV and flight information are consolidated into a single network. This means in most cases there

is only one cable instead of three, which is a direct environmental saving. Consequently there are obvious benefits for operation of the network.

In a world-first, Frame has leveraged Cisco IP phones to control the airport's digital signage. These touch screen phones are used by airline staff, anywhere within the airport, at any time to update boarding information, arrivals and departures screens. Because the airline staff can do this independently instead of calling Airport Operations, it reduces the costs to operate the airport. This information can also feed into the Airport's billing systems to charge airlines for using Melbourne Airport's infrastructure.

This flexibility also extends to allowing staff to run a television feed into the Flight Information Display Screens (FIDS) – so for example when flights are delayed by bad weather, passengers can watch something more entertaining than a departures board. Aircraft engineers can also watch TV through flight screens in their quarters during downtime. Specific information for selected groups of passengers can also easily be delivered on screen, which is especially beneficial in case of an emergency.

The FIDS are able to be controlled via any device, including mobile tablet PCs and smartphones, allowing operations staff to make changes while on the move around the terminal, without having to contact central operations staff.



An upgrade of network services at boarding gates was also undertaken and a new system called 'Gate link' was installed. This enables aircraft to start downloading critical flight information—such as the cargo and passenger manifests, passenger details, and flight data—through a wireless link while still taxiing. This technology supports the next generation of aircraft, including the Airbus A380 and Boeing 787, and is designed to increase turnaround times for this new breed of passenger jets.

Frame will provide ongoing support for the network infrastructure. "It's tremendous to see the culmination of over the last three years and see Melbourne Airport's new terminal expansion come to life" says Brad Ferguson, Managing Director of Frame. "Frame has worked with the Airport to refine its vision and then provided the architecture, processes, systems and tools to allow all stakeholders to benefit, not only now, but also for many years to come."

Frame specialises in technology solutions with a focus on using advanced technologies to improve business efficiencies.

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BRILLIANT RESULTS LAID BY DEDICATED EXCELLENCE

Wetspot Waterproofing and Tiling worked round the clock completing around an acre and a half of self-levelling and tiling on the Melbourne Airport T2E. It is that kind of effort – and the brilliant results achieved – which have seen the company grow into one of Australia's most highly credentialed tiling and waterproofing contractors.

Wetspot spent five months on site at T2E, supplying and installing all the ceramic bathroom and floor tiles, installing tiles to the concourse and airport including both ceramic tiles and Quarella 600mm X 600 mm reconstituted stone floor tiles. Wetspot also processed four large staircase treads and risers in slabs of Quarella stone. With approximately 7000m² of ceramic tiles alone to install, along with completing waterproofing for all bathrooms, main stone tiling and the task of self-levelling all concrete on the site using sand and concrete and self-levelling ardit, 35 Wetspot staff including ceramic tilers, self levelers and waterproofers worked for five months completing the assignment.

“Our contract doubled half way through the project, we were asked to level out all the floors prior to the install of the tiles, so we had to increase

man power and work 2 x shifts working around the clock in order to not blow out the completion date. We were able to carry out approximately 5000m² of self levelling in 3 weeks so as to not delay the project,” said Wetspot Director, Justin Davis.

“Wetspot and John Holland needed to work close together with their surveying team to ensure all expansion joints were strategically placed exactly as architectural drawings showed especially throughout the cross concourse on the project which is the main bridge thoroughfare to the new Gates.

“I would like to thank John Holland for the opportunity to work with such a great team. Their willingness to help our company onsite is what made the project for us so special and so productive. I would like to make a special mention to Daryl Garlick, Chris Shwartz, Glenn Davis and Shane Baker from John Holland for trusting us to complete these works and make it a success.”

The project's security conscious environment meant the deliveries to site and coordination of outside deliveries was a challenge, with all staff and vehicles entering the project area requiring inspection and clearance.

Wetspot was founded a decade ago by Director Justin Davis. “I first started the company at the age of 17 and have progressively grown throughout the years and have established a hard working reliable work force,” he said.

“I first started in domestic waterproofing at a young age working 15 hour days in order to grow the business. I then at the age of 18 employed my brother Adrian Davis as my first employee and together we grew the business and incorporated ceramic and stone tiling. As the years have passed, together with Mr Frank Fiore my head National Project Manager, Wetspot has now established itself in South Australia, Queensland and our head office is in Melbourne.”

In the last ten years, an impressive array of high profile projects have been successfully undertaken, including waterproofing and tiling to all the houses for athlete accommodation at the Commonwealth Games Village for Australand; an office tower and residential tower at 5-9 Yarra St South Yarra for Boulderstone; refurbishment of 210 apartment kitchens at Freshwater Place Southbank, numerous Residential and commercial towers for Becon Construction and Buildcorp Commercial; 109 Apartments on Sydney Road, Brunswick for Hickory Developments; Sealing of all Travertine stone and supplied and installed stone work to two Ambassador Suites at Grand Hyatt Melbourne.

Wetspot also undertook the waterproofing to Oakleigh Aquatic Centre, Monash Aquatic Centre, Virgin Active Health Pools in Melbourne, Canberra International Aquatic Centre and waterproofing to the Hydro-therapy pools at Melbourne Royal Children's Hospital.

In addition to holding the highest qualification for waterproofing contractors in Australia and being accredited ceramic tilers, Wetspot are dedicated to environmentally sustainable waterproofing and tiling solutions. The company's immediate focus for the next period of their growth is on working closely with their suppliers to establish products that contain low VOCs and carry a Green Star rating.

Wetspot have been trialling a range of products by leading Australian manufacturers, and intend to continue testing various alternatives in order to better develop these options for clients.

All the products used by Wetspot for their projects are certified to the relevant Australian standards and have been selected for their quality performance, value for investment, longevity of service and the excellent aesthetic and effective results they deliver for clients.

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DETERMINATION AND SKILL SUPPLIES STEEL FOR T2E

With 2,300 tonnes of structural steel to supply, fabricate and install for the T2E project, Aus Iron Industries expanded their own capabilities, implementing new micro-management processes and investing in new capital technology. Aus Iron provided both the structural steel for the two new gates at Melbourne Airport, and for the new baggage handling facility.

The 15 month long scope of works included detailed shop drawings for the Gates and design and shop drawings for the structural steel for baggage handling; fabrication of elements including massive five tonne transfer trusses; specification paint of all elements; and delivery and site installation, including the supply and installation of an acre of grating. Shop drawings were produced using 3D software, which was an asset for detailing the complex connections of some of the structural steelwork. All the steel fabricated met the quality standard requirements of ISO9003.

Due to the highly secure nature of the project site, all loads required ASIC security tickets, and the company's riggers and welders working on site all required security clearances.

"Doing the job in the timeframe required was thanks to the terrific client, John Holland. Communication and planning was done at a micro-level," said Aus Iron Operations Manager, Robert Hade.

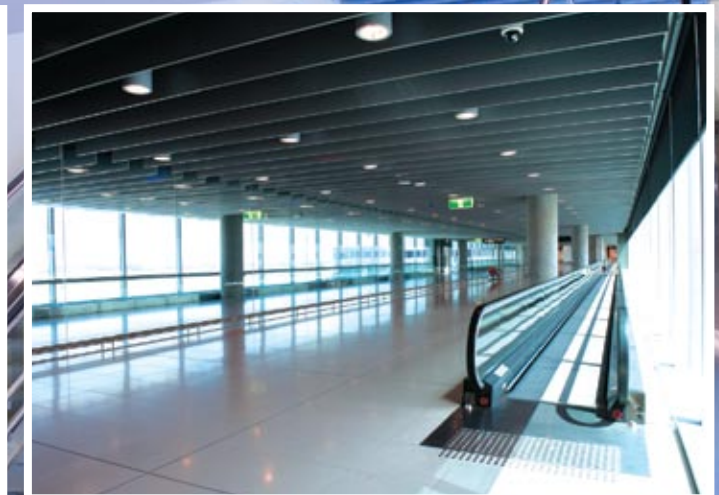
"When we took the job on, we implemented a couple of strategies to get it done more quickly. We introduced a computer-based fabrication

management system which could track where each piece of steel was at any point in time. We also invested in an Avenger CNC drilling machine and a Bakyal 9m bed Plasma Plate cutting machine, resulting in greater project control and delivery efficiencies."

Aus Iron is currently at work on another John Holland Group D&C project, as the preferred supplier and installer for 1,600 tonnes of structural steel for the Craigieburn Train Maintenance Facility.

Along with other members of the Australian Steel Institute, Aus Iron have introduced environmental management practices including reporting on fuel and power usage; recycling; and new training for the 45-strong workforce, focused on achieving sustainable outcomes. Their 8,000m² workshop facilities and overhead cranes from 5T to 20T allow them to meet the needs of a diverse range of projects from multi storey buildings to heavy strain transmission towers and processing plant structures. They are specialists in the manufacture of Permanent Stair Metal Formwork, and capable of producing over dimensional assemblies.

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GETTING PEOPLE TO DESTINATIONS

Passengers can rely on smoothly reaching the Gates of the expanded Terminal 2 at Melbourne Airport, with moving walkways, lifts and escalators designed, installed and maintained by Independent Lifting Services (ILS) to get them there.

ILS have been in the business of moving goods and people with the safest and most reliable technologies since 1986, and work at the leading edge of passenger and cargo lifting. Their commitment extends beyond the installation to ongoing 24 hour on call maintenance and repair, and also any necessary future upgrades.

Working with architects, contractors and project stakeholders from initial project stages, ILS ensure they design the most effective solution, and deliver products manufactured to meet the Australian Standards for Lift Codes, backed by ISO 9001 Quality Certification.

ILS have been maintaining Melbourne Airport's equipment since March 1997. They have also supplied their lift solutions to major projects across health, commercial, major residential, transport, cultural, retail and industrial sectors.

INDEPENDENT LIFTING SERVICES

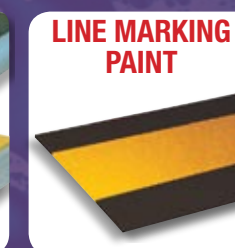
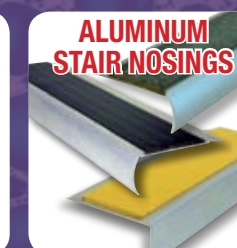
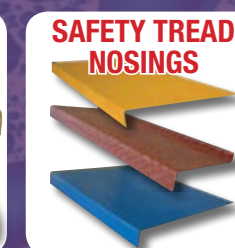
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