MELBOURNE RECITAL CENTRE

BOVIS LEND LEASE
SOUTHBANK VIC

PEAK PERFORMANCE

The Melbourne Recital Centre is a $75 million project to provide a state of the art home for performing and recording Australian chamber music. It comprises two magnificent performance spaces, the 1,001-seat Elisabeth Murdoch Hall and a more intimate 150-seat Salon. It is situated in Melbourne's Southbank Arts Precinct and is part of the Melbourne Recital Centre and MTC Theatre Project under construction by Bovis Lend Lease, which involves construction of the Melbourne Recital Centre as well as a new 500-seat theatre for the Melbourne Theatre Company.

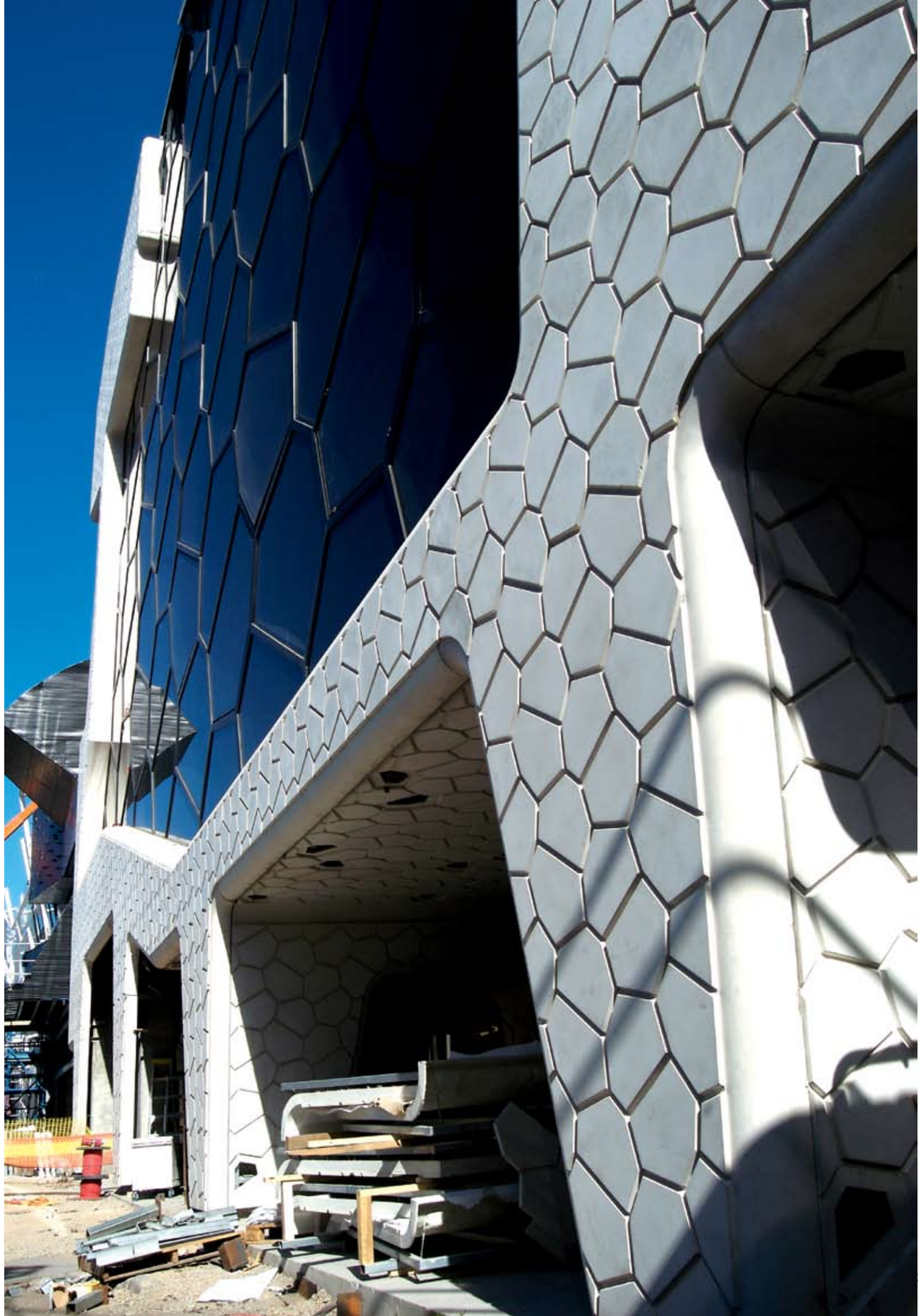
As principal contractor, Bovis Lend Lease has been intimately connected with every stage of the development, which is a significant project of the Victorian Government through Arts Victoria and Major Projects Victoria. Bovis Lend Lease has the capability and track record to deliver major and technically complex projects for its clients on an international basis. This service and expertise has proven invaluable for the Melbourne Recital Centre, a highly technical project requiring a meticulous attention to detail. The site team comprises some 30 staff members on site, ranging from project and construction manager to engineers, foremen, contracts administrators and construction workers.

The company commenced construction of the Ashton Raggatt McDougall designed Melbourne Recital Centre in July 2006. With acoustics by Arup Acoustics, the centre fuses acoustic and architectural excellence with state of the art technology.

Melbourne Recital Centre auditorium spatially occupies the bulk of the building envelope, with internal volume dimensions of approximately 21 metres x 38 metres x 22 metres. Acoustically, it is the most sensitive space in the overall development and essentially comprises a complete concrete box sitting isolated on spring bearings within the building at Level 1. The floor, walls and roof each have a minimum concrete thickness of 250mm, ensuring an optimum standard of acoustics is delivered.

The auditorium floor is located at Level 1 and is supported by reinforced concrete columns located on the ground floor foyer and rear stage areas. The auditorium box is supported on acoustic springs located directly above the foyer columns. These springs are designed to concurrently transfer the downwards weight of the building and lateral loads from the wind, or even earthquakes, into the pile foundations, as well as insulate the box from external noise and vibration sources. With tram tracks running down either side of the centre, it was important to isolate the hall from possible noise and vibration.

An expansive glass façade, with its 'bubble-glass' design which is symbolic of the precious nature of the facility, reveals four levels of public spaces. Glass reinforced concrete panels were used to create the facade. Acoustic perfection has been guaranteed by classic "shoe box" shape of the Melbourne Recital Centre as well as by 'floating' the hall on spring bearings, using concrete with a thickness of 250mm and fully lining the hall with Australian wood. The Salon is also fully wood-lined. As well as the hall, Melbourne's new musical focal point will boast two broadcasting and recording suites, rehearsal and function rooms and a cafe.



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SERVICES EXPERTS

From left: Dean Vokes, John Buckley, Gareth Day, Silvia Misuraca, Zibby Perich

Umow Lai & Associates (ULA), an engineering and ecologically sustainable development consultancy, is a nation-wide company established in 1991 by George Umow and Dominic Lai, in an office in Illoura Plaza on St. Kilda Road, Melbourne. From these small beginnings they have grown to a 140-people strong company.

It now spans the east coast of Australia after expanding to Sydney in 2005 and Brisbane in 2007. They employ professional engineers and support staff to provide planning, design and documentation and construction administration consultancy.

ULA has been an integral part of the construction of the Melbourne Recital Centre with 25 staff members from all disciplines working on the project. "We designed all the building services for the project and provided technical advice to Bovis Lend Lease and trade subcontractors during construction," says Senior Associate and Melbourne Recital Centre Project Leader Zibby Perich.

ULA specialises in providing cost effective and energy efficient design of all building services, mechanical, electrical, fire protection, communications, fire engineering, lifts, ESD and hydraulics systems. "We listen to our clients and their needs, and transform their requirements into technical documents, for implementation by builders and contractors," says Mr. Perich. Their contract administration team, lead by Mr. Gareth Day, provides ongoing technical support to clients, builders and contractors throughout the construction and commissioning phases.

Specifically, ULA has designed mechanical services - air conditioning with heating and cooling, natural ventilation systems, natural gas reticulation including cooking facilities; electrical services – power supply and distribution throughout the building, theatrical systems cabling and reticulation, back of house and general areas lighting design, lighting control systems, exit and emergency lighting, lightning protection; fire protection systems; lifts - passenger lifts, goods lifts, loading dock scissor lifts and escalators; communications – structured cabling system for phone and data (a Cat 6 system), Master Antenna TV system (MATV), PABX system, wireless network system, and integration with other theatrical in house systems; security – access control system, CCTV monitoring system, intruder alarm systems; hydraulics - water supply to site, cold water and hot water systems, waste water systems and grease interceptor systems in the kitchen.

There were unusual challenges to designing services for the Melbourne Recital Centre because of the very nature of the building – a world class performance and recording space for chamber and ensemble music. ULA met those challenges head on.

The overall complexity of the building and individual spaces, in terms of its structure, architecture, acoustics, theatrics and services, required a can do attitude and an informed, team-oriented approach between all design and construction teams.

Leading edge technology, design and equipment was used throughout design and construction to attain the world class standards for the building and its world class acoustics set by the client. Challenges faced and met include: achieving the acoustic criterion for a world class venue of a Preferred Noise Criteria of 15 for some spaces; acoustic and vibration isolation of services crossing from critical to non-critical spaces; consideration of Occupational Health and Safety for access and maintenance, particularly for areas with high ceilings; providing services to coordinate with specialist theatrical equipment. Melbourne Recital Centre features displacement air conditioning which provides greater comfort to patrons together with big energy savings to the client, than the standard overhead air conditioning system. Low energy lighting sources such as LED and T5 fluorescent tubes and energy efficient electronic ballasts were used throughout the building.

Construction will be completed in 2009.

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HOT OFF THE PRESS

Tender sets and plans for the Melbourne Recital Centre, a $75 million project in Melbourne's expanding arts precinct, were all produced by the one company, Creffield Digital Print. Melbourne Recital Centre fuses acoustic and architectural excellence with state of the art technology. Every contractor on the site relies on Creffield Digital Print produced plans and documents.

Creffield Digital Print is Melbourne's leading plan copying service and is located at 101 Rosslyn Street, West Melbourne. Its four high volume, Océ digital printers supplied a massive 120,000 square metres of plans for the Melbourne Recital Centre project.

Creffield Digital Print chooses to use Océ machines as they are a world leader in wide format plan printers, the equipment needed to produce tender sets and plans for contractors. But Océ machines have a further advantage, they have been classed by European authorities as environmentally friendly. For Creffield Director Frank Veltman, this is an important feature of the Océ printers: "Bovis Lend Lease is a high profile project management, design and construction company. Architects and other construction companies like Bovis Lend Lease are demanding environmental awareness from their suppliers and contractors. By using environmentally friendly printing equipment we are meeting and exceeding their environmental expectations for document printing."

Creffield's theme for 2008 is Caring for the Earth. Already, they are members of Greenfleet and put money directly into reforestation, they use Océ stock because it is made from Australian materials, and they recycle toner cartridges. Creffield will continue to contribute to research for improvement of printing methods. Already, a need for cost effective and faster colour printing of drawings is being sourced. Customers will also have the opportunity to use recycled paper into the near future.

Creffield Digital Print's services include plan printing, CAD plotting, printing from the web, scanning, photocopying, document management and document binding, mounting and laminating. They also provide graphic design and photoshop editing.

Creffield Digital Print can scan plan sizes from A3 to AO with a maximum width of 914mm and a maximum length of 20 metres. A more realistic length is, however, seven or eight metres as 20 metres is too long to be read by a pdf file and requires expensive viewing software. They scan aperture cards and accept small to very large scan requests. By using the latest scanning hardware supplied by Océ they are able to offer a document management service where they can scan revised project drawings, convert the file to pdf and upload the file to a nominated consultant's or project's web site.

One of the biggest challenges for Creffield, a firm which turns 120 years old in 2008, has been to react to the demands of fast and constant communication. "With today's technology, emails arriving all hours of the day, every day, our clients expect a fast turn around and we have had to become a seven days a week operation," says Veltman. To meet these demands, delivery times are critical. "We use our own drivers rather than outsourcing delivery. This prevents loss of documents. By looking after our people, we look after our clients' documents and save our clients thousands of dollars in lost time or documents."

DISTINCTIVE DESIGN

ARM has completed the design for the new 1001 seat Melbourne Recital Centre and 500 seat theatre for the Melbourne Theatre Company, to be co-located within Melbourne's Southbank Arts Precinct. The two buildings have been designed to have separate but complimentary identities, together creating a distinctive new civic space.

The Melbourne Recital Centre complex has been designed primarily as a chamber music venue with the main hall seating 1000 music lovers and a smaller salon space for pre-concert talks and experimental chamber music seating up to 150 patrons.

The new drama theatre, which will be the permanent home for the Melbourne Theatre Company, is a 500 seat, single tier, proscenium arch theatre which includes a full fly tower and backstage accommodation for actors and technical staff.

Both buildings are state-of-the-art facilities incorporating the very latest in stage technology and performer amenity. They have been designed as neighbours in a vitalised street. The café and restaurant facilities in each, box office and performance activity with ancillary educational activities will make this a place that is active day and night. The design ensures that both theatre and recital centre are part of the street – this is not an arts fortress, but is made up of shopfronts that engage passers by. They are civic buildings of the highest order, establishing the missing heart of the Southbank Arts Precinct in Melbourne.

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SPECIAL FOCUS
FIRE AWAY

A good reputation, high quality and professional service has ensured great success for Greyton since being established in August of 1994. This is proven by their involvement in a vast number of major Sydney projects, as well as many within the NSW region.

In this edition, fire protection to structural steel is featured. The photos show vermiculite spray to 25m high columns in a Sydney warehouse, intumescent paint to the full structure at 2 Market Street and a heritage column from the new Sydney Theatre. A 1-hour fire rating has been provided while still maintaining its original charm.

Greyton's work is certified to comply with manufacturer's specifications and BCA requirements. They are also a member of CERTIFIRE and Firas Quality Assurance Schemes specific to the passive fire industry. Every fire rated installation is tested to the relevant Australian standards and is supported by certificates, suitable letters of opinion or assessments.

Greyton uses materials from a whole range of suppliers, yet is a preferred applicator of Promat Australia, Exfoliators, Grace Construction Products, Hilti Australia, KBS and Trafalgar Building Products.

In the next edition Greyton will feature fire protection to mechanical duct systems, one of the most important areas in building passive fire protection.

GREYTON
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ENGINEERING FOR THE ARTS

The Melbourne Recital Centre is one of Bonacci Group's most recent projects. Its iconic architecture and exceptional design and construction set the stage for an exciting and innovative building. Bonacci Group has met and exceeded the demands of engineering such a structure.

A six person strong team led by Project Director Stephen Payne and including structural engineers, civil engineer and structural draftsperson, provided structural and civil engineering services, from conceptual design to design development, contract documentation and construction phase services.

The complex internal and external architectural forms challenged Bonacci Group to incorporate as much commercial type structure as possible, to achieve the economics and construction speed that the project needed, without impacting the stringent acoustic specifications of the building.

"From a structural design view point, the majority of materials and construction techniques used for the primary structure were quite conventional," says Project Director Stephen Payne, "however, the demanding architectural external form of the front entrance façade required extensive use of glass reinforced concrete and the quantum of different wall cladding materials and construction types was significant."

The Melbourne Recital Centre has an extremely stringent acoustic specification with the auditorium comprising 250mm thick reinforced concrete walls and with the roof and floor all supported on acoustic springs within the main building superstructure. Strictly controlled construction sequencing was a critical requirement to ensure gradual load accumulation on the springs.

The tall reinforced concrete auditorium walls, with essentially no lateral restraint, drove the decision to construct these walls with steel frames clad with pre-cast panels. The steel frames also supported the large roof trusses spanning across the auditorium. The auditorium required the careful development and documentation of erection sequencing and temporary support mechanisms to ensure its stability throughout construction.

Bonacci Group's specialist civil and structural engineering teams devised effective and time-saving solutions to the challenges of constructing an iconic, world-class home for the performance and recording of chamber music.

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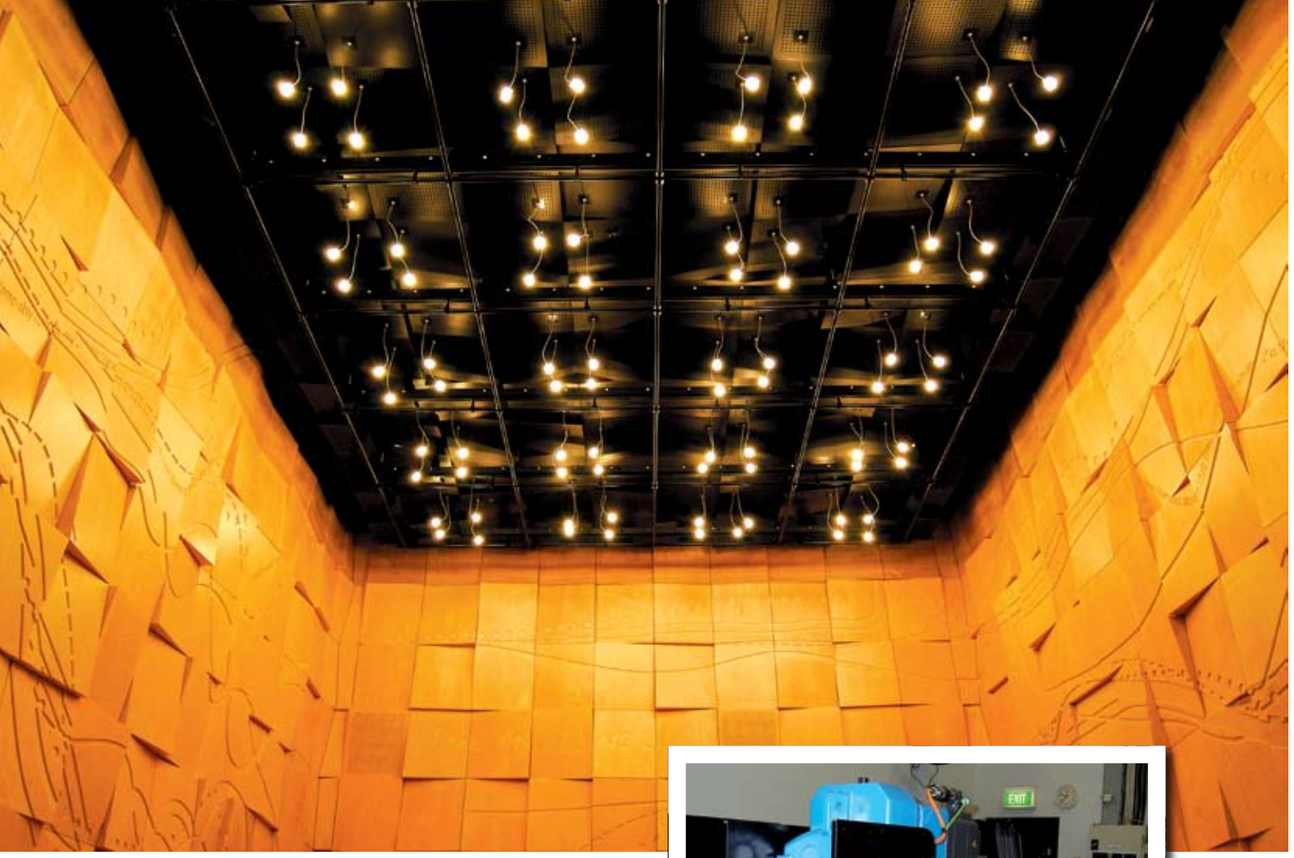

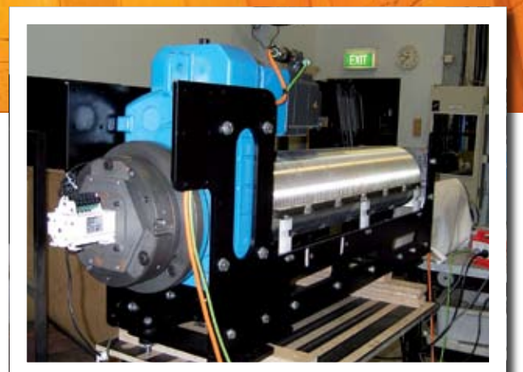

A SOUND PERFORMANCE

Communication, commitment and tried and tested materials and systems were the key to Jands' outstanding performance on the Melbourne Recital Centre and MTC Theatre Project, which incorporates the Melbourne Recital Centre and a new theatre for the Melbourne Theatre Company.

Jands, founded in Sydney in 1970, opened an office in Port Melbourne in 2006 and in May 2007 won the contract for the Melbourne Recital Centre and MTC Theatre Project to provide audio, lighting and staging for the performance spaces. Their Staging Division employs over 40 staff across the design, manufacture and installations of complete staging solutions. The Division is growing as it offers theatres, conference centres and civic centres all the mechanisms needed to stage a performance.

If you are building or outfitting a stage, the last thing you want to deal with is multiple providers. This is what Jands means by offering a complete staging solution: they do everything themselves, from making the drapes, to finding or designing the right machinery and installing the equipment.

Whether you want a set of drapes for a school hall or a completely automated stage for a world-class performance venue, Jands can do it.

For the Melbourne Recital Centre and MTC Theatre Project, Jands is providing all the stage lifts (four fully controlled lift systems); all hoists and their associated control systems (over 72 drum hoists); stage lighting control; audio systems and all luminaries and dimming systems.

The large scope of the project, with its highly technical requirements, has created a complex and challenging installation project. The number of rooms being built and the intricate nature of each room led to a multitude of subcontractors working on the project. Jands' dedicated team applied outstanding levels of project planning and communication to achieve an outstanding result.

JANDS
audio • lighting • staging

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EMBELTON VIBRATION ISOLATION

Acoustic integrity of the performance spaces under all conditions has been a central focus of the design process for the Melbourne Recital Centre.

Due for completion in 2009, the centre is adjacent to a busy road intersection traversed by trams and other heavy vehicle traffic giving rise to significant levels of low frequency noise, shock and vibration energy in the immediate geophysical environment.

To ensure that these disturbances will not compromise acoustic performance, the building has been designed with near complete isolation of the performance areas, including the entire 1,001 seat centre which is effectively "floating" on Embelton™ spring bearings within the main structure.

Initial requirements for building isolation were formulated by Arup Acoustics as part of the total acoustical specification and, in designing the vibration isolation system to meet the specification requirements, Embelton worked closely with Arup, principal contractor Bovis Lend Lease and the structural consultants during the post tender and construction phases of the project.

Complemented by lateral restraint devices,54 large spring bearings provide structural isolation of the Melbourne Recital Centre with point loads up to 2,200 kN carried by individually preloaded spring units weighing up to 500kg. Additionally, Embelton designed and supplied wall, ceiling, lift and mechanical services isolation ensuring a single point of responsibility for all key vibration control requirements.

Embelton is a long established listed engineering company with a background of more than 50 years in providing engineered solutions for isolation of structure borne noise and vibration.

Another Embelton division is also involved with the Melbourne Recital Centre as supplier of the jarrah strip flooring, bamboo parquetry and flooring accessory products used throughout the project.

EMBELTON
NOISE AND VIBRATION ISOLATION

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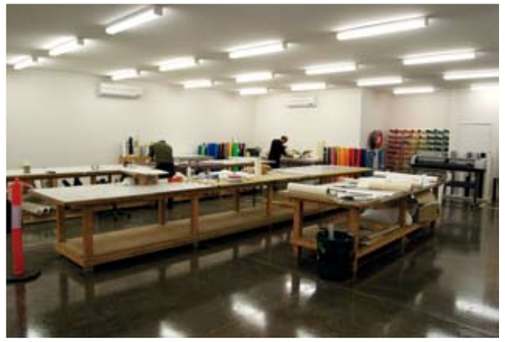

SIGN OF THE TIMES

Consolidated Graphics had fun playing with the Melbourne Recital Centre's internal curves when it came to installing the centre's internal signage. Andrew Adams, Consolidated Graphics' General Manager explains: "There are lots of curves in the building, no sharp corners or right angles and the walls fold into the ceilings so there are no square edges or traditional cornices." And in keeping with the curved and folded theme, signs wrap around tapered columns and curved edges or corners.

The design challenges set by the Melbourne Recital Centre have been met by Consolidated Graphics, a 34 year old Melbourne company now based in Clayton, Victoria. Signs are clear acrylic and backed with dusted crystal so they look like etched glass. The signs' fixing has been concealed by slotting the signs through the ceiling panels and then fixing them above ceiling level. At the Melbourne Theatre Company building next door, Consolidated Graphics has manufactured and installed signs which are all black, red and white painted panels, appear to be three dimensional and also wrap and fold around walls and ceilings.

Consolidated Graphics specialises in high quality architectural and corporate signage in a wide range of materials and finishes and with low carbon emission illumination options. Of the company's 17 employees, 15 have been involved in the Melbourne Recital Centre and MTC Theatre Project. The company provides complete project management from concept and design through to manufacture in its dedicated factory and final installation.

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