PRECAST INTEGRAL TO PERTH STADIUM TRANSPORT INFRASTRUCTURE

Sports fans in Perth are eagerly awaiting their new stadium with the promise it will attract national and international events to the Western Australian capital.

The Perth Stadium and Sports Precinct in Burswood has been under construction since December 2014 and is due to open for the first bounce of the 2018 AFL season. A vital part of this major infrastructure project is the road and rail network to take sports enthusiasts to and from events.

While the stadium is being built, there is also a suite of works underway to deliver an integrated transport system to manage all pedestrian, car, bus and train movements. Included in that is a $29 million dollar package of road and bridge works on Victoria Park Drive to accommodate the stadium.

Perth-based National Precast member Delta Corporation was contracted to supply precast elements for one of the main bridges as well as to extend an existing pedestrian footbridge. The company's Managing Director Matt Perrella says the footbridge expansion comprised a large precast beam measuring 30 metres. "The formwork was the biggest challenge because of the complex shape. The underside is flat and then rotates to a fairly shallow beam," he says. Although transporting a beam of this size may seem testing, Mr. Perrella says it was a relatively straightforward operation that posed no issues.

At its state of the art production facilities, Delta also manufactured 27 precast prestressed TeeRoff beams to expand the rail bridge interchange connecting Victoria Park Drive to the Graham Farmer Freeway. The varying sized beams were only 800 millimetres deep to maintain as much height room as possible for the trains passing underneath.

Precast was chosen for this project because of its convenient off-site manufacture, high quality finishes and faster installation. "This bridge is over an existing rail line, and disrupting the trains gets very expensive," says Mr. Perrella. "It was a very congested site and there was only a very short period of time for installation. Using precast saved on costs and also minimised any disruption."

The road and bridge expansion will enable new railway lines to be installed on the Perth-Armadale line to service the new Stadium Station, which is now under construction. The pedestrian underpass will ultimately connect the station to the new stadium and sports precinct.

Mr. Perrella says it's satisfying to be involved in such an important infrastructure project and part of the bigger development of the Perth Stadium and Sports Precinct and it's a project that will revolutionise the fans' experience of sporting and entertainment events in Perth.

Precast manufacturer:
Delta Corporation
Contractor:
Lend Lease Engineering
Client:
Main Roads Western Australia

NEW TENDER SERVICE GIVES BUILDERS THE BEST DEAL

National Precast has a new service available to help builders who want to use precast. The Association's tender service allows builders to use National Precast as a one-stop shop when they need prices on precast.

"The new tender service has been created as a response to industry demand," According to National Precast's CEO Sarah Bachmann.

"Over the past five years we have seen a spike in the popularity of precast," says Ms. Bachmann, going on to explain that "this in turn has seen many new manufacturers enter the market, which is making the process of locating a trustworthy and cost-effective precast manufacturer confusing and time consuming."

In order to simplify this process the association has made its nationwide network of accredited precast manufacturers easily available to the construction industry, in their new simple-to-use tender service.

According to Ms. Bachmann, the tender service has been developed in conjunction with architects, builders, engineers and precast manufacturers to help ensure a user-friendly process. "It was vital that we developed a service that worked well for all parties involved, ensuring that not only specifiers will submit tenders for work but that our precast manufacturer members will in-turn tender on those jobs," she explains.

It's an easy process. Simply fill out the required fields on the association's website www.nationalprecast.com.au, and sit back and wait for the tenders to arrive.

"So far, the feedback received has been overwhelmingly positive," says Ms. Bachmann.

PRECAST PRODUCT PROFILE: NOISE WALLS

For most Australians, road noise is one of the most significant neighbourhood noise issues. The challenge for governments and developers is to provide liveable spaces in metropolitan communities alongside major roads, highways and railways to facilitate daily commutes and traffic flow.

Also known as acoustic, sound or noise barriers, noise walls provide the solution to this development issue. Driving along countless freeways and highways around the country, noise walls that are constructed from various materials - but most commonly precast concrete - line the roadside.

As their name implies, noise walls are designed to reduce the transmission of noise. Every development is assessed to determine what type of precast noise wall is best suited.

Reflective barriers are usually high walls alongside the road edge to reflect traffic noise. Although some sound still passes over the barrier, the noise level on the other side is generally low in relation to the traffic noise.

Another form of noise wall is the dispersive barrier. These distribute noise upwards or downwards, depending on their incline and surface pattern.

Absorptive barriers, as their name implies, absorb the sound by forcing the sound pressure waves to move in and around many tiny fibres or passages to dissipate the sound energy.

In some cases, the best solution may be a combination of barrier types.

There are numerous advantages of constructing noise walls with precast concrete. Being manufactured off-site in a controlled factory environment guarantees a high quality product, excellent finishes and a fast construction time. Installation is simplified and safer as less trades people are required on site.

In addition, precast has the added benefits of being sustainable, as well as durable and low maintenance.

The countless options of high quality surface finishes that are on offer also ensure a pleasing aesthetic solution. Striking designs can be achieved with finishes including smooth off-form, stained or painted off-form, water-washed exposed aggregate, acid-etched, sand-blasted exposed aggregate. Patterns can also be incorporated for added interest using form-liners.

The 2.5 kilometre noise wall at the Shell Cove development, 20 kilometres south of Wollongong in New South Wales is a great example of an aesthetically sympathetic and effective precast concrete noise wall.

The need to address road noise was a priority for residences close to the existing Bass Point Quarry. In this case, texture and colour was added to the precast panels and the noise walls were installed with the patterned side positioned towards housing. A black pigment was added to the concrete mix, providing a low maintenance colour that fit in with the aesthetics of the development and the local landscaping.

Glass reinforced walls are another precast concrete product often used for noise walls. Manufactured using glass-reinforced concrete, this cement based composite material has alkali-resistant glass fibres randomly dispersed through the product. The GRC walls are strong and lightweight, and used extensively by roads authorities throughout Australia.

One of the largest and most prominent GRC noise wall projects is a section of the busy M4 motorway in Parramatta. About 1400 GRC panels were used to line both sides of the viaduct, along with on and off ramps. They were chosen because of their weight, coming in at about one-tenth of the weight of an equivalent precast concrete panel. Bold patterns and colours were chosen to ensure the noise walls are a distinctive feature of this motorway. The use of GRC also allowed minimal disruption to traffic flow during installation. The M4 is one of the busiest roads in the country and only a single lane was closed during the fixing of the panels.

Although precast concrete noise walls are most commonly used alongside roads to reduce traffic noise, they have a variety of other applications including railways, bridges, shopping centres, parking structures, tunnels and airports.

Want more information?
To talk to a National Precast member who can manufacture noise walls, visit www.nationalprecast.com.au.