FACT SHEET

Benefits of using precast - Total precast structures

Total precast structures are becoming more widespread throughout Australia. In today's competitive construction industry, time is critical… delays and downtime cost money. Total precast concrete building systems are becoming a popular choice for many construction projects. Now widely regarded as an economic, structurally sound and architecturally versatile form of construction, total precast combines the benefits of very rapid construction and high QUALITY materials with the advantages of production line economy and quality assurance.

Total precast structures are being used for many types of structures including apartments, parking structures, retail developments, offices and industrial buildings. Architectural and structural precast concrete components can be combined to create entire energy efficient buildings. This design approach can take several forms, including precast columns and beams with panelised cladding or load-bearing precast walls, precast floors, precast service cores and precast stairs. The use of total precast in a structure offers fast construction, structural stability and enhanced fire resistance. A wide range of options is available for creating the perfect system to achieve the size and shape of building required.

Total Precast Structures: the benefits

- Shop drawing process eliminates on-site surprises
- Smoother design process
- Off-site manufacture means less time on-site

NATIONAL PRECAST
CONCRETE ASSOCIATION AUSTRALIA
making precast easy

FACT SHEET

- Reliable supply of elements – not weather dependent
- Quality assured products
- Fast erection, with highly skilled erection crews
- Following trades gain earlier access
- Simplified construction (less trades)
- Longer spans mean flexible floor layouts and column-free space
- On-site safety more manageable
- Possibility of a one-stop-shop for the whole structure
- Design assistance provided to consultants
- Maximise benefits of thermal mass
- Durable, maintenance-free, long life structures
- Design freedom

PLUS all the proven benefits of precast concrete construction.

Total precast design considerations

On any total precast structure there are a number of critical design features that have to be addressed at the outset, including ceiling heights, load bearing walls, accommodation of lift boxes and some of the unique façade elements, in particular balconies. Once it is determined that the quality, safety and other requirements around these meet the brief, the design team in conjunction with the precaster is in a position to start fine tuning. The rest of the design refinement is centred around those issues. The essential requirement for any total precast project is to allow adequate lead time to allow such refinement. Interior design flexibility is provided by long span precast concrete flooring systems that help building owners adapt to changing client needs in future years. Precast flooring systems can span up to 17 metres to minimise the need for interior columns required with in-situ systems. Precast also provides high loading capacity at little added cost.

Projects convert to total precast

Across Australia there have been hundreds of structures completed over the last decade where precast columns, beams, walls and floors have been utilised. Current significant projects being constructed in Melbourne include Melbourne Airport T2 departures lounge extension and the David Jones Redevelopment in the CBD. Both projects have been undertaken as a result of the project parties wanting to look beyond the previous in-situ construction methods and asking how construction methods may be able to be improved. On the Melbourne Airport T2 project the use of precast flooring has allowed the installation of the baggage handling system to commence and be completed several months earlier than would have been the case had an in-situ concrete frame structure been utilised. Similarly at the David Jones site the critical following trades are completing the fitout of the structure which would be restricted by formwork support systems with other construction systems.

NATIONAL PRECAST
CONCRETE ASSOCIATION AUSTRALIA
making precast easy