NATIONAL
PRECASTER
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# To precast or not to precast... That is not the question.

**The use of precast concrete in construction is now widely regarded as an economic, durable, structurally sound and architecturally versatile form of construction. Members of National Precast are highly regarded, experienced, and have a proven track record in the Australian construction industry.**

**The benefits of factory-made precast are recognised as making a significant contribution to lean construction. The advantages of drawing on the experience and expertise of specialist precast manufacturers in purpose-built factories, are considerable.**

*Precast is manufactured under controlled conditions, by specialists in purpose-built factories.*

## High quality

Precast is not the same as insitu or tilt-up concrete. Precast is manufactured under controlled conditions, by specialists in purpose-built factories. National Precast Members employ rational and efficient manufacturing processes and quality control is undertaken by skilled personnel. This commitment to the quality process means a greater opportunity for:

- consistently high quality outcomes;
- zero defects;
- structural predictability; and
- reliable delivery.

*Combined, National Precast Members invest hundreds of thousands of dollars each year in the latest equipment, training, safety and quality systems.*

## More reliable

Being manufactured under cover, the manufacturing process is not affected by adverse weather conditions. This aids in the adherence to construction scheduling while helping to meet critical deadlines.

*Precast elements are manufactured and stored well ahead of site requirements, ensuring no delay to site progress.*

## Improved aesthetics

Precast can be grey and off-form, whereby the use of state-of-the-art steel casting beds and forming equipment result in a quality of finish which is far superior to that which can be achieved in-situ or on-site. A variety of architectural finishes can also be achieved by varying:

- the colour, with different cements, aggregates, pigments, paints or stains;
- the form, with moulds which can be made especially for a project by the precaster, or form liners, or by embedding thin brick or stone into the precast; and
- the finish by grit-blasting, etching or polishing.

*Precast provides architects and designers with a variety of aesthetic options.*

## Design flexibility

The design flexibility offered by precast is unparalleled. Moulds can be created to suit any requirement, giving the capacity to do both structural elements and the architectural facade. Structural elements can be tailor made to suit any project. A myriad of exterior architectural facades can be achieved using different colours, textures and finishes, from a grey unpainted off-form finish to decorative polished and highly detailed finishes. Mould liners are also an option.

*Moulds can be fabricated to suit any requirement.*

*The design flexibility offered by precast is unparalleled.*

*Precast achieves a quality of finish which is higher than what can be achieved on-site or in-situ.*

# Safer

National Precast Members employ safe work practices both during production and during erection of elements on site. Improved safety has flow on benefits for end users.

Construction site safety is also improved because on-site trades and their associated activities are minimised or even eliminated. Finished components are delivered to site and lifted directly from the vehicle into position on site, often without the need for scaffolding.

*Off-site manufacture means improved site safety because on-site trades are minimised.*

# Higher strengths

Precast is usually supplied with compressive strengths above those which are specified.

The combination of reinforcement and pre-stressing provides for:

- longer life cycles for all types of projects - structures can even double in life expectancy by using precast;
- high loading capacity; and
- long clear beam and flooring spans (perfect for bridges and carparks, or where immediate access by subsequent trades is required).

*Long clear precast flooring spans mean minimal scaffolding and propping.*

## Precast for Engineers

**A ONE-DAY SEMINAR**
**presented by John Woodside**
NPER, F.I.E.Aust, F.A.S.C.E, M.I.C.E, M.I. Struc.E
(winner of the John Connell Gold Medal)
on behalf of National Precast Concrete Association Australia & Concrete Institute of Australia.

NEW

Being held in capital cities in November 2007

**Topics to be covered:**

- Materials & Tolerances • Precast Building Design
- Manufacture, Transport & Erection • Design of Elements
- Contractual Issues • Connections, Fixings & Joints
- Architectural Precast.

Email: **admin@concreteinstitute.com.au** for more information.

*High strength and prestressing mean long clear spans, high load-bearing capacities and longer life cycles.*

# Faster construction

Manufacturing of precast components can be commenced as soon as drawings are approved. This ensures they are ready for erection as soon as foundation work and other site preparation is completed. Once precast erection commences, on-site construction and off-site manufacture can be overlapped, thereby reducing overall site construction times.

The continuous, uninterrupted erection of precast structural components lends itself perfectly to fast-track construction schedules.

Erection incorporates the latest in connection technology, and can proceed swiftly and safely in almost any weather by experienced erectors. The result is construction times which may be up to 75% less than traditional construction methods. **The times can be even less when a smaller number of larger units is specified.**

Precast's ability to enclose the structure much sooner than traditional types of construction enables earlier access for follow-on trades. The long clear spans provide an instant work platform and minimal propping further enhances access and improves project construction times.

*Manufacture of precast components can commence as soon as drawings are approved.*

*Over 50 hollowcore planks can be placed in a day.*

# Lower Cost

Precast provides the owner, developer and contractor with a firm budget and scope of work for the building early in the project.

Whilst the face value cost of precast may sometimes appear higher than traditional construction methods, significant **cost savings** are realised from other areas:

- initial design for precast, eliminating the need for conversion from traditional construction methods;
- manufacture of precast elements concurrent with commencement of early site works;
- expedited construction;
- reduced time on site;
- reduced site defects;
- reduced propping and scaffolding costs;
- lower site labour costs;
- reduced plant, tools and materials storage requirements;
- economies from specifying fewer larger elements;
- re-use of moulds;
- lower costs of finance resulting from reduced time on site; and
- earlier revenue receipts because of shorter project times.

It is only when there is an early understanding and recognition of these cost savings, that the maximum benefits of precast can be realised in the project, when compared with traditional construction methods. Factoring in the cost savings makes it obvious that precast is the more economical choice.

The direct impact of using precast on a project's bottom line is substantial, producing short-term assurances that schedules will be met and long-term pay backs over the structure's lifetime through lowered maintenance costs and better, smoother operation. It is one reason many state and federal government authorities and others prefer to engage a National Precast Member for their projects.

# Secure

Precast is inherently strong and acts as a barrier for locations where security is an issue.

# Fire & Disaster Resistant

Precast concrete structures are resistant to fires, wind, hurricanes, floods, earthquakes, wind-driven rain, moisture damage and terrorist attacks.

*Precast enjoys superior performance in fire.*

# Less waste

Employment of lean production in the manufacturing environment means that production waste is minimised. Tight control of quantities of constituent materials and precise mix proportions mean optimum use of materials. Less waste is created. Standard precast products such as beams, flooring, decks, road barriers and drainage products are manufactured in one type of mould that is used repeatedly. Any waste materials are more readily recycled because production is in one location.

Site waste is also reduced as exact amounts of elements are delivered to the construction site.

*Whilst less waste is created due to tight controls on constituent materials, recycling is more likely because production is in one location.*

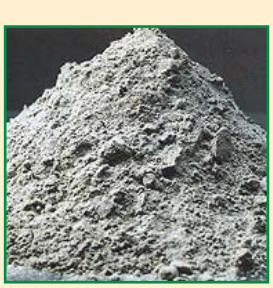
# Environmentally friendly

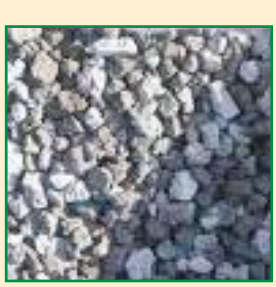
Precast concrete has many environmental benefits during construction and for the life of the structure.

Manufacturing precast uses less energy than that required for either structural steel frame components or glass curtain walling. Recycled supplementary cementitious materials such as fly ash and slag cement, silica fume, and recycled aggregates and grey water can be incorporated into precast concrete. This diverts materials from the landfill, reducing use of virgin materials and the overall environmental burden.

On site, precast construction creates less air pollution, noise and debris.

The high quality finish of precast concrete means that it can be left untreated and exposed in order to maximise concrete's thermal mass benefits and to contribute to green energy-management solutions.





*Recycled materials such as fly ash and slag can be incorporated into precast concrete. location.*

# Durable & Low Maintenance

The integrity of precast concrete makes it extremely easy to maintain. Maintenance and operating costs are low. More durable than other materials, precast provides long service for high use applications. Precast has a long life expectancy of up to 100 years.

*Because precast is durable and low maintenance, it is frequently specified for public buildings.*

# Energy Efficient

Precast's high thermal mass offers great thermal efficiency, with resultant benefits for heating or cooling requirements. Because of its high density, precast has the ability to absorb and store large quantities of heat. Compared to other materials such as timber and steel, reactions by precast to changes in outside temperature are slow, thereby reducing peak heating and cooling loads. The delay improves the performance of heating, ventilation and cooling equipment, which in turn saves energy.

# Acoustic benefits

Precast concrete features inherent sound-attenuation properties due to its mass that provide an efficient acoustic barrier.

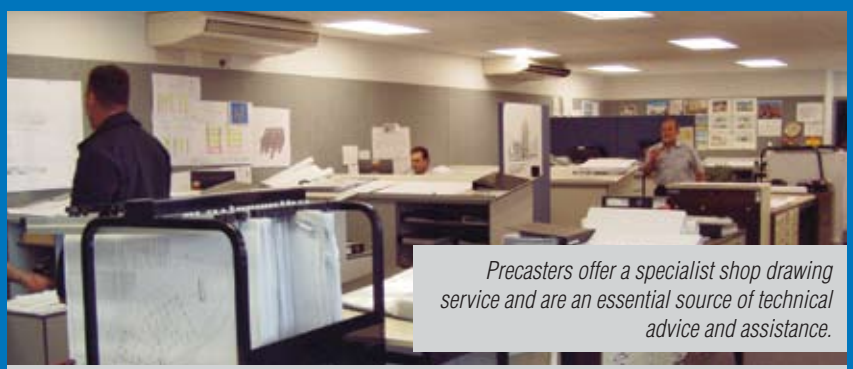
*Precast panels provide an effective sound barrier between residential areas and highways.*

# Partnering with the precaster

Efficient design interface can only be properly managed if all parties are involved, and able to play a full and equal role, in the development of the design. Bringing the precast manufacturer into the process as early as possible is absolutely essential to ensure the highest quality and maximum cost effectiveness afforded by precast. Early input can result in dramatic cost and time savings which will directly affect the bottom line, producing an efficient, aesthetically pleasing structure produced on time and on budget.

# Ongoing relationships: continuous improvement

The ultimate benefits come when head contractors enter into continuous partner relationships with their specialist sub-contractors. It is the continuous improvement which comes from on-going relationships that really yields the maximum benefits. Continuous improvement means that the lessons learned on the last job are used to advantage on the next and the next.



*Precasters offer a specialist shop drawing service and are an essential source of technical advice and assistance.*

## Services National Precast Members can offer *

- Quoting and estimating;
- Shop drawings based on consultants' designs;
- Design support;
- Specialist technical assistance;
- Manufacture of high quality precast elements;
- Delivery of elements to site;
- Erection of elements;
- Post erection works including grouting, caulking and welding.

* Note – services vary according to the individual Member.

# Precast Industrial Buildings

**One Day Seminar**
**For Builders and Engineers**
**DesignBuild Perth**

9:30 am - 4:30 pm
Friday 12 October
DesignBuild Perth
Perth Exhibition & Convention Centre

Sessions include:

- The design of industrial buildings.
- The detailing of the precast panels.
- The manufacture of the precast panels.
- The safe erection of the precast panels.
- Trends in construction of industrial buildings in other States.

**Cost:**
$220.00 (GST inclusive)
**$190.00 (GST inclusive)**
**For bookings received by 28 September 2007.**

*(fee includes morning and afternoon tea, lunch and handouts. Participants receive a copy of the new NPCAA Industrial Buildings Detailing Manual and an electronic copy of the Precast Concrete Handbook)*

**To register, go to www.npcaa.com.au/html/EDUCATION4.html (builders) or www.npcaa.com.au/html/EDUCATION5.html (engineers)**



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