

CHAPTER 2

Precasting is recognised as a staple of modern construction for its many inherent benefits such as good quality, speed of erection, durability and flexibility for aesthetics.

2.1 Advantages

Benefits from the use of standard prefabricated building components include:

- **Better project management**
- **Shorter project / construction period**
- **Competitive construction cost**
- **Better control of labour**
- **Minimal housekeeping**
- **Quality assurance**

Better project management

The successful implementation of precast concrete projects requires careful planning and good co-ordination among the clients, architects, engineers and also the potential precasters and contractors, right from the inception of a project. With the Reference Guide in-place, the awareness of the standard details would enable better design, integration and co-ordination, resulting in better project management.

Shorter project / construction period

In a competitive environment such as in Singapore, shorter construction period would mean lower interest cost on construction development loans and quicker investment returns. With the use of prefabrication / precast technology, standard building components could be produced in the factory without affecting site operations, thereby shortening the construction cycle and construction period.

Competitive construction cost

With the impending legislation of Buildable Design in 2001, the production level of prefabricated components is expected to increase. For mass production of prefabricated components to be viable, there is a need to have a high level of standardisation. This would enable some savings in producing

shop drawings and using inter-changeable components that are suitable for a wider range of building types. In addition, standardisation of prefabricated components would lower the cost of production and offset the high capital investment in equipment and mould.

Better control of labour

Singapore relies heavily on foreign workers. In the *Construction 21* report, the Government has signalled that; "The Man-Year Entitlement (MYE) will be further reduced to 70% of the current levels by 2005 and eventually to 50% of the current level by 2010, or earlier if practicable."

The productivity of the construction industry could be improved through the usage of standard prefabricated building components. The use of these components would allow contractors to increase productivity at site with fewer unskilled workers.

Minimal housekeeping

It is not easy for a contractor to maintain a clean, hygienic and tidy site by using the traditional in-situ construction. This is due to the nature of work, which requires labour intensive steel fixing, concreting and carpentry. Past records have identified that an untidy and congested site is prone to accidents.

Prefabrication technology enables the transfer of in-situ construction activities from sites to factories, resulting in a cleaner, less congested and safer worksite.

Quality assurance

With the higher affluence of our society and higher level of education, customers today demand value for the high cost of their properties and they are less tolerant to poor quality and defects. Prefabricated components produced under a factory environment allow tighter quality control. The result is a more consistent quality product with fewer defects.

2.2 Rationale of Standardising Prefabricated Building Components

The objectives of standardising prefabricated building components are to:

- Encourage the industry to move away from labour-intensive to labour-saving construction methods.
- Promote the wider use of standard prefabricated building components.
- Encourage designers to use the recommended dimensions as a starting point of their design.
- Facilitate and provide designers with the necessary design data, which could be purchased off the shelf from precasters.
- Provide the necessary design guidelines and considerations when adopting standard prefabricated building components.
- Provide the necessary reinforcement details, which are commonly adopted by the industry.
- Minimise errors and rectification works, commonly encountered in in-situ construction.