

# **Modern Project Procurement Methods**

**A White Paper**

## **PART 1 – UNDERSTANDING THE PROCUREMENT METHODS**

**21 July 2015**

**epm Projects Pty Ltd**

# TABLE OF CONTENTS

<b>INTRODUCTION</b>	<b>3</b>
<b>CHALLENGE</b>	<b>3</b>
<b>STRUCTURE</b>	<b>3</b>
<b>SECTION 1 - PROJECT PROCUREMENT METHODS</b>	<b>4</b>
<b>SECTION 2 - ADVANTAGES &amp; DISADVANTAGES OF PROCUREMENT METHODS</b>	<b>7</b>
<b>ABOUT THE AUTHOR</b>	<b>7</b>
<b>APPENDIX 1 – ADVANTAGES &amp; DISADVANTAGES OF PROCUREMENT METHODS</b>	<b>8</b>

## **Introduction**

This white paper describes the most common methods for procuring building projects. It provides an overview by Andrew Graham (Managing Director, epm Projects Pty Ltd). In doing so, Andrew relies on his own experience as a project manager as well as the collective wisdom of his management team which represents nearly 100 years' experience in project management. This paper considers the advantages and disadvantages of each method, important matters in selecting a method, and key elements for managing the selected method. It concludes with a summary of seven guiding principles. It serves to assist owners and procurement managers to make informed decisions so that they are given every opportunity to make their projects a success.

## **Challenge**

Property development is unquestionably risky business. How then does the project procurement method influence this risk? Answering this question before selecting a procurement method should set the project on a course for success.

## **Structure**

This white paper is arranged in two parts – each downloadable separately. The paper is structured as follows:

### **PART 1 – UNDERSTANDING THE PROCUREMENT METHODS**

#### **Section 1 - Project Procurement Methods**

#### **Section 2 - Advantages & Disadvantages of Procurement Methods**

### **PART 2 – SELECTING AND ADMINISTERING A METHOD**

#### **Section 3 - Selecting the Preferred Method**

#### **Section 4 – Risk Allocation Considerations**

#### **Section 5 - Project Administration Considerations**

## Section 1 - Project Procurement Methods

Successful project delivery depends on deliberate and careful management and administration of the selected procurement method. It demands an appropriate focus on the areas that give rise to the greatest risk, a clear understanding of the procurement method, and the reasons it was selected over other methods.

The Procurement Practice Guidelines published by the NSW Government Procurement Office point to ten methods that are used by the government to procure construction projects. In our experience, the four most common of these methods used by private enterprise are:

1. Documented Design
2. Design Development & Construct
3. Design & Construct
4. Managing Contractor

What do these mean, and in what context do they work best?

- **Design** – Design is a two -dimensional representation of an object (i.e. a drawing, an artist’s impression, or a computer generated image). Design may include the whole or part of a building or structure. The aim of a “concept” or “scheme” design is to communicate the way in which the proposed object or building might look.
- **Developed Design** – This stage of design moves beyond being conceptual or schematic to a greater level of detail. It illustrates how the design might respond to various constraints and opportunities. The process is often iterative, with each iteration leading to further development of the design.
- **Documented Design** – Once a developed design is agreed it must be documented suitable for use by external parties. Ordinarily it would satisfy one or more of three purposes – tendering, construction, and/or certification.<sup>1</sup> The documented design shows the components of an object or building element. It shows how the components fit together. Documented design includes a corresponding commentary or set of instructions (commonly referred to as a specification).
- **Construct** – The Oxford Dictionary defines the word “construct” to mean “build or make (something, typically a building, road, or machine)”. While this may seem obvious, a clear understanding of the meaning of this term is important in managing risk associated with selecting and administering project delivery methods. This will become clearer later in this paper.

Constructing includes procuring all the components in the shape, size and composition depicted in the documented design, having regard to the instructions (specifications). When arranged in the ways shown in the documented design, the components form a

---

<sup>1</sup> Certification of a design has in view consistency with a Development Consent. This is required before construction can commence.

true physical representation of the documented design and thereby meet the intentions of the designer.

So, how do each of the four methods work? Moreover, how do they differ from each other?

### **Method 1 - Documented Design (DD)**

Under this method, someone other than the party that has the responsibility to construct, undertakes the documented design. Typically, the project owner procures the design and then engages a builder to construct the design.

This method is also referred to as “construct only”. This description means that the builder does not have the responsibility to design. This is, however, a dangerous term that should be avoided. This is because there is inevitably an element of design that can only be undertaken by a builder in consideration of the specific circumstances at the time. For example, a builder is required to prepare drawings for the manufacture of windows or joinery. These ‘workshop drawings’ as they are commonly known, are used to reflect the manufacturing process, materials and systems used in that particular building element. Workshop drawings incorporate design and yet are the responsibility of the builder.

Nevertheless, the inference is that under the Documented Design method, the design should be sufficiently documented (or detailed). This enables a competent and experienced builder to interpret the design in a manner that enables it to construct. The risk for errors and omissions in the design rest primarily with the party that is responsible to procure the design, not the builder.

### **Method 2 - Design Development & Construct (DD&C)**

Here, the responsibility to procure the design (that is a concept or scheme) is distinct and separate from the responsibility to procure the developed design, the documented design and then to construct. These latter phases rest with the builder under this method.

This method substantially shifts the risk relating to errors and omissions in design to the builder. However, to the unsuspecting, this method also creates a different dimension of risk which will be considered later in this paper.

### **Method 3 - Design & Construct (D&C)**

Under a D&C arrangement, the responsibility to prepare a concept or scheme, design development, design documentation and to construct all resides with the builder. Typically, the concept or scheme reflects what are commonly referred to as ‘user’ or ‘project’ requirements. A written statement, communicating the performance standards and requirements to be met by the completed building, is normally prepared by, or on behalf of, the client.

This is one of the most common methods used to shift risk associated with property development to the builder. While not criticising this method, in our experience it has the potential to create more risk than it solves. This is particularly so in circumstances where ownership and operation will remain in the same hands (e.g. a school, or an aged care facility).

#### **Method 4 – Construction Management (CM)**

This works under an arrangement where the builder is responsible to manage the procurement of the concept or scheme, the developed design, the documented design and to construct. However, unlike other methods where the builder has responsibility to procure design, in this case the builder generally does not take any risk associated with the suitability of design. Nor for many of the risks that are usually associated with “contracting” (e.g. price, delays, subcontractor performance, industrial disputes and inclement weather).

## Section 2 - Advantages & Disadvantages of Procurement Methods

There are inherent risks with each delivery method. No one method will suit every circumstance. This means that it is important to understand the advantages and disadvantages of the various delivery methods before deciding a preferred method. The table in **Appendix 1** sets out our experience-driven view about the advantages and disadvantages of each method. We also show means for mitigating risk.

## About the Author

*Andrew Graham is the Managing Director of epm Projects Pty Ltd. Andrew's project management experience includes work in a range of organisations including Leighton Contractors, the Sydney Organising Committee for the Olympic Games and Optus Communications. It includes a large number of projects across the commercial, education, and aged care sectors. A portfolio of the work carried out by Andrew and his team at epm can be found at [www.epmprojects.com.au](http://www.epmprojects.com.au). Andrew can be contacted by email at [agraham@epmprojects.com.au](mailto:agraham@epmprojects.com.au) or by telephone +61 2 9452 8300 or on mobile phone at +61 419 732 021.*

## APPENDIX 1 – ADVANTAGES & DISADVANTAGES OF PROCUREMENT METHODS

Method	Advantages	Disadvantages	Mitigation
<p><b>1. Documented Design</b></p> <p><i>The project owner procures design that is suitable for obtaining statutory development and construction.</i></p>	<p>The greatest level of control over design; lowest risk margin by builder; and simplest method by which to compare prices.</p>	<p>Requires significant up-front investment; risk that the design may not be as buildable as it could be; construction cannot commence until documentation is complete; and the risk of errors in design generally rests with the project owner.</p>	<p>Thorough up-front feasibility study; experienced, well-resourced and properly briefed consultant team who produce good quality documentation that is complete, accurate and coordinated.</p>
<p><b>2. Design Development &amp; Construct (DD&amp;C)</b></p> <p><i>Project owner procures design and development consents while the builder documents the design.</i></p>	<p>Lower upfront investment; risk for compliance of design with standards and delays from design shared with builder; gives greater opportunity for more buildable design; and allows procurement and construction to commence before design has been completed.</p>	<p>Increased risk of disputes about responsibility for design errors or inadequacies; changes in requirements may be more costly; risk of quality issues from work that is undertaken in advance of fully documented design; and builder prices risk that he may not be best placed to manage.</p>	<p>As per Documented Design plus good quality 'Statement of Principal's Requirements'; clearly defined process for procuring design; novation of consultants to the builder; and separate consultants to review design documentation produced by builder.</p>
<p><b>3. Design &amp; Construct (D&amp;C)</b></p> <p><i>Typically the builder is responsible to develop design for all purposes</i></p>	<p>Lowest upfront investment in design in comparison to the foregoing methods; otherwise as with 'Design Development &amp; Construct' except that the risk for compliance of design with statutory standards and the delays by design is usually</p>	<p>As with DD&amp;C except that the risk that design does not meet the requirements of the project owner are even greater.</p>	<p>Generally as per Documented Design and DD&amp;C.</p>

Method	Advantages	Disadvantages	Mitigation
<p><i>for which it is required based on a concept and a statement of the Project owner's requirements.</i></p>	<p>borne entirely by the builder.</p>		
<p><b>4. Construction Management</b> (Incl. Managing Contractor)</p> <p><i>The builder works collaboratively with the project owner and its consultants during the design process, and arranges and manages the trade contractors.</i></p>	<p>The most collaborative method to manage time, cost and quality; greatest incentive for a builder to share innovation up-front; and in contrast to the Documented Design method, gives opportunity for construction to commence before design has been fully documented.</p>	<p>Probable cost and timing of the project at the commencement of building work is less certain than in all other methods; the risk of the performance of a supplier or trade contractor rests with the project owner including the risk consequent to a supplier or trade contractor becoming insolvent; and the risk that costs that should be borne by the builder because they are overheads become trade costs borne by the project owner.</p>	<p>As with Documented Design; require the builder to contract directly with trade suppliers and contractors; and ensure that overheads that are included in the builder's fee are clearly defined.</p>