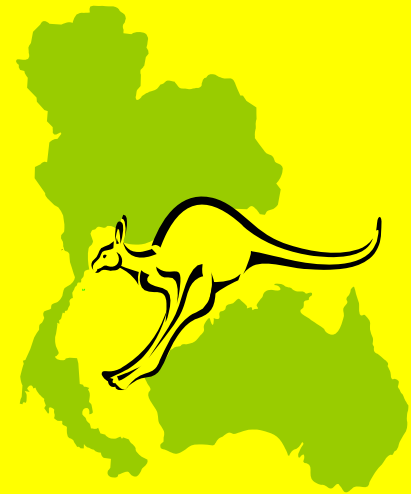


**USING FIDIC CONTRACTS to  
MANAGE TIME and DESIGN  
RISKS on CONSTRUCTION  
PROJECTS in THAILAND**

**Presented to PMI Bangkok Chapter  
by Tim Kelly on 21 September 2011**



**Austthai Engineering  
Pty Ltd**

# Scope of this presentation ... 3 topics

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- ❑ increasing certainty with FIDIC contracts
- ❑ managing time risks in FIDIC contracts
- ❑ managing design risks in FIDIC contracts

# Future infrastructure needs in SE Asia ...

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The “State of the World – FIDIC Infrastructure Report”<sup>1</sup> published in 2009 set out a number of key findings ...

- ❑ three mega-trends dominate the world today – they are globalization, information technology and **urbanization**
- ❑ increases in population continue to put more and more pressure on infrastructure
- ❑ an estimated USD 65B needs to be spent each year for next 5 years in East Asia and Pacific [6.2% of GDP] on electricity, roads, rail, water, sanitation and telecommunications
- ❑ scale of required investment is vast, and the effects of GFC have made credit more difficult to obtain
- ❑ in order to receive high quality bids reflecting the real price and technical requirements for most projects, it is essential to prepare accurate documents prior to starting the bidding process<sup>2</sup>

## Brief background to FIDIC contracts ...

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- ❑ FIDIC = “Federation Internationale des Ingenieurs-Conseils ” or, in English, as the International Federation of Consulting Engineers
- ❑ founded in 1913 by three national European associations
- ❑ first “Red Book” was published in 1957
- ❑ original “Yellow Book” was published in 1963
- ❑ now used in more than 70 countries
- ❑ in 1999, several FIDIC contract forms were updated to address 3 issues
  - standardise terminology within all of the FIDIC contract books
  - make the documents more user friendly, and
  - clarify the role and independence of the Engineer
- ❑ the “Silver Book” was first published in 1999

# What do the FIDIC contract forms cover ?

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The 20 common sections in all FIDIC contract forms are ...

1. general provisions, definitions, law
2. employer's (owner's) responsibilities
3. contract administration procedures
4. contractor's general obligations
5. design obligations and documents
6. staff and labour requirements
7. plant, materials & workmanship
8. time, program, progress and delays
9. completion tests
10. hand over requirements
11. defects liability and costs
12. tests after completion
13. variations, dayworks and changes in law
14. payments, certificates and contract sum
15. termination by the owner / employer
16. termination by the contractor
17. risks, responsibilities, limits of liability
18. insurance requirements
19. force majeure, notices, consequences
20. claims, disputes, arbitration



## Reasons for using FIDIC contracts ...

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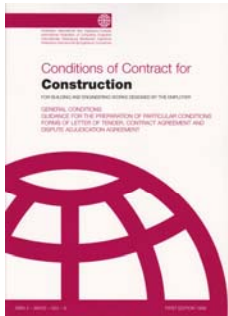
- ✓ widely used in over 70 countries in many different legal jurisdictions
- ✓ there are different forms to suit various procurement strategies
- ✓ standard terminology and consistent approach
- ✓ provides an appropriate balance in sharing risks according to the contract form chosen
- ✓ provides flexibility where necessary e.g. methods of payment vary according to nature of the work and are consistent with regime selected for managing risks
- ✓ in use for over 50 years with most recent updates reflecting lessons learned over many years through a wide range of project environments facing many different challenges and risks
- ✓ long history of successful deliveries in both civil law and common law jurisdictions ... can they be used within the Thai legal system ?

# A brief history of the Thai legal system <sup>5</sup>

- prior to BE 2325 [1782], judges used the ancient laws of “Ayutthaya” and relied on personal notebooks and other records in making judgments
- in BE 2325 [1782], King Rama I recognized the deficiencies in the use of personal records and other interpretations of the ancient laws, and a new substantive law “Kotmai Trasamduang” was promulgated in BE 2347 [1804]
- this legal system was then used for 103 years until English law was introduced into the kingdom after Prince Rajaburi [son of King Rama V] returned from studying in England
- from that time, English law was taught widely in the kingdom and almost all law textbooks were either based on English law or translated into English
- when Thailand began to experience jurisdiction problems as European countries began to expand their influence in the Asian region, it was decided to follow Japan’s lead in promulgating written legal codes ... this was a great change for Thailand because it had to change its legal philosophy
- the Thai legal system then changed into a code system similar to the civil law systems used in many European countries



# Most common types of FIDIC contracts used in SE Asia



“... a traditional contract embodying the measurement and valuation payment mechanism... ”<sup>3</sup> for works constructed by the Contractor but designed by others<sup>6</sup>



“... the Contractor undertakes a fitness for purpose obligation which extends to the design, as well as materials and workmanship in construction ... ”<sup>3</sup> where risks are shared between the Employer and the Contractor<sup>7</sup>



“... the Contractor takes total responsibility for the design and execution of the project with the involvement of the Employer... where a higher degree of certainty of final price and time is required ... ”<sup>3</sup> for works where the Contractor takes all risks, including design changes<sup>8</sup>



# TIME ISSUES

**Slide 11**

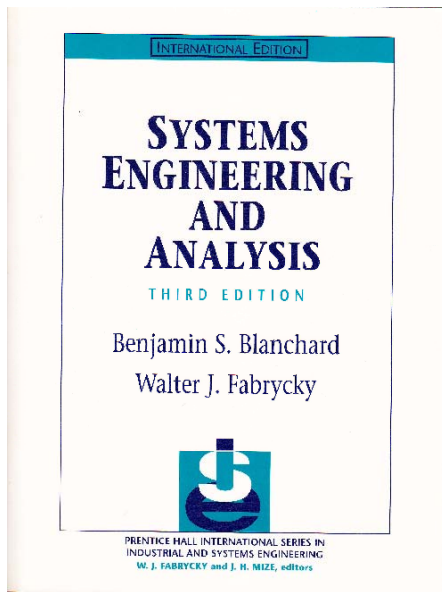
## Time for Completion under FIDIC contracts ... clause 8



- ❑ section 8 in all FIDIC contracts ... but requirements vary according to the type of FIDIC form used
- ❑ program required to minimise and manage changes in the scope<sup>4</sup>
- ❑ clause 8.3 requires the Contractor to submit a program within the same defined period, and all require the Contractor to “ .. *promptly give notice to the Employer of specific probable future events or circumstances which may adversely affect or delay the execution of the Works ..*” <sup>6,7,8</sup>
- ❑ clause 8.4 covers extensions of time, but varies significantly

## Managing and reviewing detail designs for complex projects<sup>12</sup> ..

“ *design evolves through a series of stages: conceptual design, preliminary system design, detail design and development ..* ”<sup>12</sup>



- ❖ system life cycle process – refer Figure 2.2 page 20
- ❖ basic design sequence – refer Figure 5.8 page 106
- ❖ design data review cycle – refer Figure 5.6 page 111
- ❖ sample design review checklist – refer Figure 5.9 page 113
- ❖ formal design reviews – refer Figure 5.10 page 115
- ❖ stages of system evaluation during the life cycle – refer Figure 6.2 page 124
- ❖ evaluating systems and implementing corrective actions – refer Figure 6.7 page 138
- ❖ managing and controlling design changes – refer Figure 6.9 page 141

“ .. *test planning should actually begin as part of the advance system planning during conceptual design ..* ”<sup>12</sup>



## Design obligations in FIDIC contracts ...

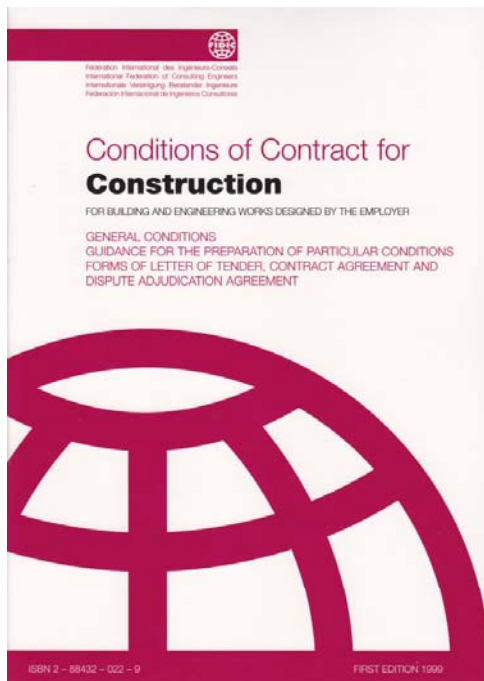
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- ❑ clauses 4.1 and 5 in all FIDIC contract forms cover design, but the design obligations vary significantly between the Red, Yellow and Silver Books
- ❑ clause 4.1 requires the Contractor to design, execute and complete the works in accordance with Contract<sup>3</sup>
- ❑ the Red Book is “ .. intended to be suitable for building and civil or other engineering works designed by the Employer or his representative ..”<sup>2</sup>
- ❑ the Yellow Book is “ .. intended for plant and for building and engineering works designed by the Contractor where the Employer may have executed some design ..”<sup>2</sup>
- ❑ the Silver Book is intended for use where “ .. the Contractor takes a higher degree of risk and therefore the construction time and cost are more certain ..”<sup>2</sup>

# Design obligations are limited in the Red Book ...

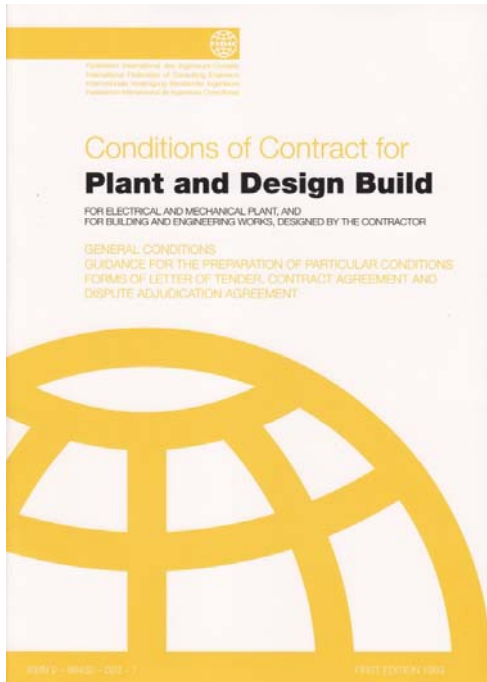
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- ❑ design of the works is provided by the Employer to the Contractor<sup>2,3,4,6</sup>
- ❑ however clause 4.1 allows for “ .. *the possibility that the Employer may wish the Contractor to design part of the Works ..*”<sup>3</sup>
- ❑ clause 4.1 also requires the Contractor to “ .. *design the Temporary Works ..*”<sup>3</sup>
- ❑ some design work is also usually required in preparing “ .. *construction drawings for the purposes of implementing the Employer’s design ..*”<sup>3</sup>

# Design obligations in the Yellow Book ...

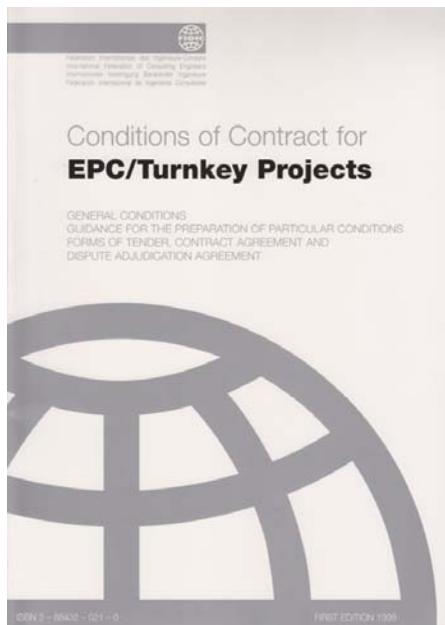
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- ❑ under clauses 4.1 and 5.1 “ .. *the Contractor is expressly required to carry out and be responsible for the design of the Works in accordance with the Contract ..*”<sup>3,7</sup>
- ❑ clause 5.1 requires the Contractor’s design to be prepared by “ .. *engineers or other professionals who comply with the criteria stated in the Employer’s Requirements ..*”<sup>3,7</sup>
- ❑ clause 5.1 also requires the Contractor to review the Employer’s Requirements and advise of any errors or defects in these requirements<sup>3</sup>
- ❑ clause 5.3 requires the Contractor to give an undertaking that the “ .. *design will be in accordance with the documents forming the Contract as altered or modified by Variations ..*”<sup>3</sup>

# Design obligations in the Silver Book ...

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- the design obligations under clauses 4.1, 5.1 and 5.3 are the same as the Yellow Book<sup>3</sup>
- Employer has no right to challenge use of designers<sup>3</sup>
- the Contractor is reviewing Employer's requirements and is responsible for errors in Employer's documents except for a limited range of information and criteria<sup>3</sup>

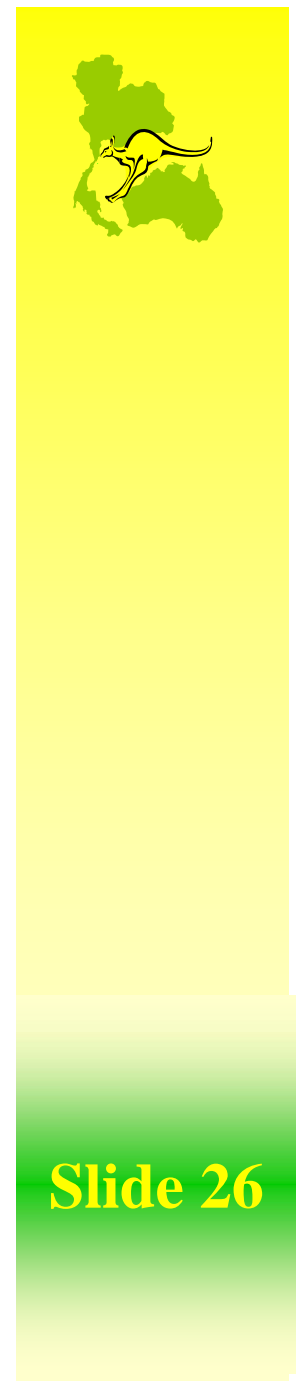
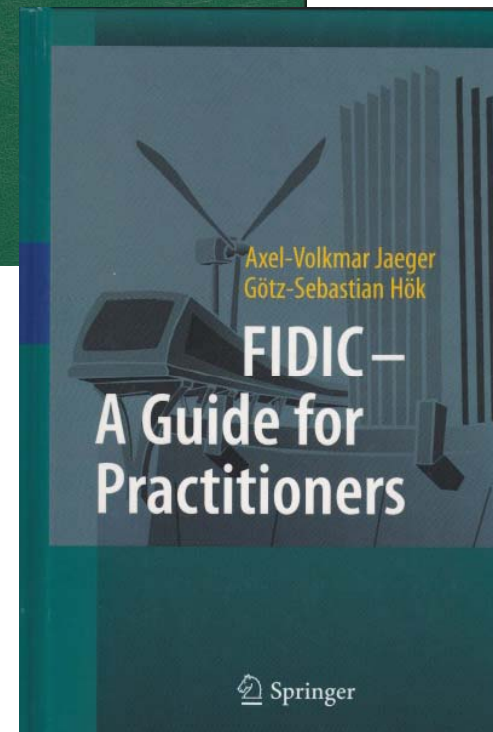
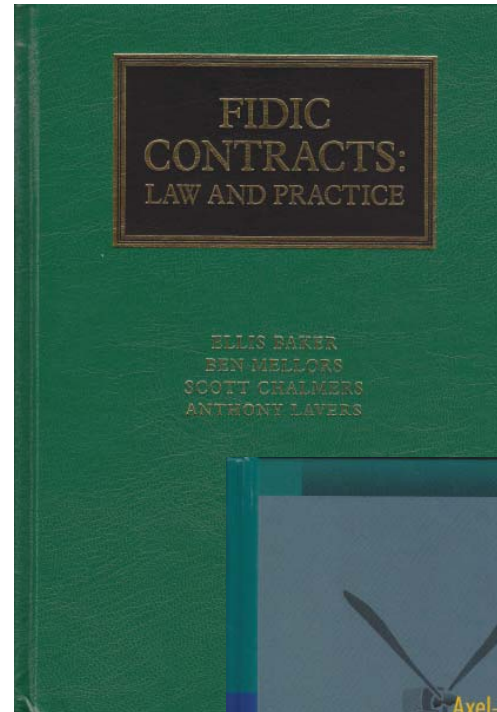
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# FIDIC books and important references ...



## Other helpful references for managing time and design ...

