

FIDIC 合約基本架構

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會技術發展委員會主任委員、第十三屆環境發展促進委員會委員

得獎：2009淡江大學優良導師獎、2011至2017年淡江之光獎、淡江大學105學年度傑出研究教師

專案管理
(進度成本整合)

資訊科技技
術

工程法律
(工期展延
分析)



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臺馬數位科技國際中心
淡江大學工程法律研究發展中心



International Federation of Consulting Engineers
The Global Voice of Consulting Engineers

- Fédération Internationale des Ingénieurs Conseils
- International Federation of Consulting Engineers
- 1913/7/22
- Member Association
- Multinational Development Banks

FIDIC MEMBER ASSOCIATIONS & ASSOCIATES

Albania	Albanian Association of Consulting Engineers
Australia	Consult Australia
Austria	Austrian Consultants Association
Azerbaijan	National Engineering Consultancy Society of Azerbaijan
Bahrain	Bahrain Society of Engineers
Bangladesh	Bangladesh Association of Consulting Engineers
Belgium	Organisation des Bureaux d'Ingenieurs-Conseils, d'Ingenierie et de Consultance
Bosnia and Herzegovina	Association of Consulting Engineers of Bosnia and Herzegovina
Botswana	Association of Consulting Engineers Botswana



Contract forms

- Conditions of Contract for Works of Civil Engineering Construction: The Red Book (1987)
- Conditions of Contract for Electrical and Mechanical Works including Erection on Site: The Yellow Book (1987)
- Conditions of Contract for Design-Build and Turnkey: The Orange Book (1995)

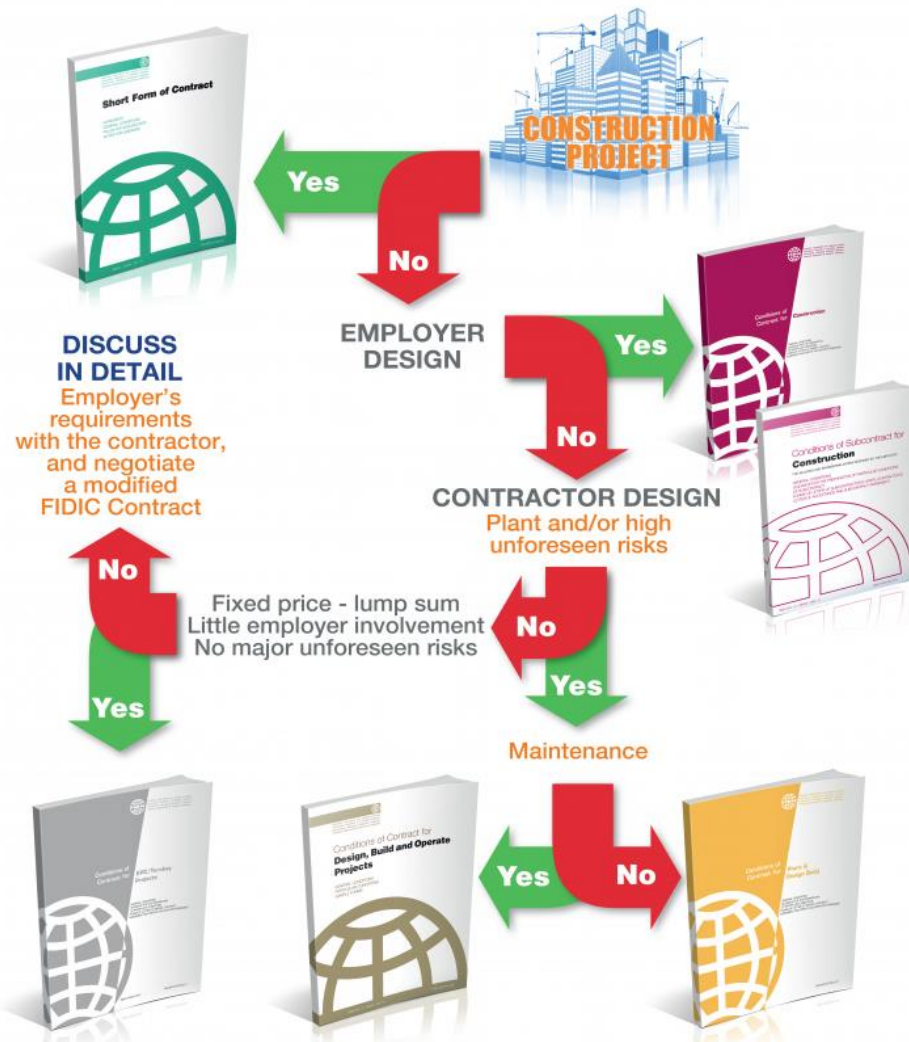


FIDIC SHORT FORM

- under US\$ 500,000
- 6 months
- the work involved is relatively simple

1. Different Books
2. New/OLD
3. RED/PINK Books
Yellow/Silver Books

Conditions of Contract for EPC Turnkey Projects Sliver Book



DBO CONTRACT 1ST ED (2008 GOLD BOOK) Conditions of Contract for Design, Build and Operate Projects

The RED BOOK/The PINK BOOK

- Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (The Construction Contract)
- the MDB Harmonised Edition of the Construction Contract 2005 (2006,2010)/FIDIC Pink Book: The MDB Harmonised Edition of the Red Book

Construction (1999 Red Book) Subcontract 1st Ed (2011)

Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Plant and for Building and Engineering Works Designed by the Contractor: The Plant and Design-Build Contract (Yellow Book)



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Green book

- Short Form of Contract
- The Guidance Notes for the Green Book recommended that generally it should not be used on projects with a contract value greater than US\$500,000.
- However, depending on the type of work and the circumstances, most suited fairly simple or repetitive work or work of short duration without the need for specialist sub-contracts.
- Under the usual arrangements for this type of contract, the Contractor constructs the Works in accordance with design provided by the Employer. However it may also be suitable for contracts which include or wholly comprise, the contractor's design.



Red book (1)

- Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (The Construction Contract)
- The Red Book provides conditions of contract for construction works where the design is carried out by the Employer.
- the focus is now more on type of procurement rather than the nature of the works.
- The current edition drops the words “civil engineering” from the title and this signifies a move away from the Red Book only being applicable to civil engineering works.
- The Red Book is intended for use on projects where the employer carries out the design but it also allows for some elements of the project to be Contractor designed.
- The Red Book is not suitable for use where most of the works are to be designed by the Contractor



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Red book (2)

- Administration of the project and supervision of the works is carried out by an Engineer who is employed by the Employer. The engineer is responsible, amongst other things, for issuing instructions, certifying payments and determining completion.
- Payments are normally determined by measurement and applying the rates and prices from the bill of quantities. There is an option for payment to be on the basis of a lump sum.
- Forms of security such as parent company guarantee, advance payment bond and a retention guarantee which can be selected as applicable to the contract via the Particular Conditions.



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Red book (3)

- Where the engineer is required to determine a matter or settle a claim he is required to consult with each of the parties to try and reach an agreement.
- If agreement cannot be reached the engineer must make a fair determination taking due regard of all relevant circumstances.
- If an engineer's determination is not agreed by either of the parties then the dispute will be referred to a Dispute Adjudication Board for a decision.
- The DAB is formed of one or three people who are jointly appointed by the parties. If the decision of the DAB is not accepted by any of the parties then the final step will be resolution via an international arbitration



PINK BOOK

- Red Book (MDB edition) ~ MDBs
 - African Development Bank
 - Asian Development Bank
 - Black Sea Trade and Development Bank
 - Caribbean Development Bank
 - European Bank for Reconstruction and Development
 - Inter-American Development Bank
 - International Bank for Reconstruction and Development (The World Bank)
 - Islamic Bank for Development Bank
 - Nordic Development Fund



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Conditions of Subcontract for Construction

- In February 2010, FIDIC published the 2009 "test" edition.
 - The sub-contractor assumes the duties and obligations of the contractor under the main contract for the sub-contract works.
 - The payment terms include pay-when-paid clauses.
 - FIDIC has included guidance notes and sample particular conditions, to assist the parties in jurisdictions, like the UK, where pay-when-paid clauses are unenforceable.
 - The parties can refer disputes that are specific to the sub-contracting relationship to an ad hoc dispute adjudication board.
 - The sub-contractor must provide programme details that are not required under the Pink Book's programming requirements. That is, the sub-contract has more detailed programme requirements than the Pink Book.



Yellow book

- The Yellow Book provides conditions of contract for construction works where the design is carried out by the Contractor.
- The current edition drops the words “electrical and mechanical works” from the title
- the focus is now more on type of procurement rather than the nature of the works.
- The Yellow Book is therefore applicable to the provision of electrical and/or mechanical plant, and for the design and execution of building or engineering works.
- Under the usual arrangements for this type of contract, the Contractor designs and provides the works in accordance with the Employer’s requirements which may include any combination of civil, mechanical, electrical and/or construction works.



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Orange Book (1)

- Conditions of Contract for Design-Build and Turnkey
- When the Orange book was published the Red and Yellow Books were still aimed at procurement of civil engineering and plant installation respectively.
- At the time it added a clear design and build and turnkey option into the available suite of contracts. Since the publication in 1999 of the latest Red and Yellow Books there is now less focus on the type of project and more focus on the implementation of different procurement strategies.
- It is now likely that an Employer requiring a design and build or turnkey project under a FIDIC contract would use a 1999 edition of the Yellow Book for design and build or a Silver Book for Turnkey.



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Orange book (2)

- The Orange Book is drafted for use where the Contractor carries total liability for design.
- For the Employer, such single-point responsibility may be advantageous, but the benefits may be offset by having less control over the design process and more difficulty in imposing varied requirements.
- Under the usual arrangements for a design-build contract, the Contractor is responsible for the design and provision of works. The works may include any combination of engineering (including civil, mechanical, electrical, etc) and building works.



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Orange book (3)

- The Orange Book is intended for use on turnkey contracts, under which the Employer's requirements usually include provision of a fully-equipped facility, ready for operation at the turn of a key.
- The exact Employer requirements will need to be fully detailed to describe the design, construction, fixtures, fittings and equipment required to be provided by the Contractor's design.
- When used for turnkey projects it may be necessary to impose a requirement for the Contractor to operate the Works, either for a few months' commissioning period, or for some years' operation on a build-operatetransfer basis. If this is the case then the FIDIC Gold Book may now be more appropriate.



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Silver book (1)

- Conditions of Contract for EPC Turnkey Projects
- The Silver Book is suitable for use on process, power and private-infrastructure projects where a Contractor is to take on full responsibility for the design and execution of a project.
- Risks for completion to time, cost and quality are transferred to the Contractor and so the Silver Book is only suitable for use with experienced Contractors familiar with sophisticated risk management techniques.
- For many large projects construction is only one part of a wider complicated commercial venture and financial or other failure of the construction project will jeopardize the whole venture.
- The Silver Book approach may suit such projects as it will provide a greater level of cost certainty than can be achieved under the more traditional forms of the FIDIC suite



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Silver book (2)

- To obtain this increased cost certainty the Silver Book requires the Contractor to accept a higher level of risk than is typical under most other forms of contract.
- The Silver Book transfers the risk of ground conditions to the Contractor. Similarly the Contractor also assumes responsibility, subject to some exceptions, for the accuracy of the Employers Requirements which is a major difference to usual design and build contracts.
- Given the high level of risk transfer the Employer must allow time sufficient time in its procurement programme for the Contractor to obtain and consider all relevant information before signing the contract.
- Not all risk is passed to the Contractor under the Silver Book and the Employer still retains risks for war, terrorism and Force Majeure.



Silver book (3)

- Through the use of Particular Conditions it is possible for the Employer and Contract to agree alternative risk sharing arrangements before entering into the Contract.
- Following award of a project under the Silver Book the Contractor will be given freedom to carry out the work in his chosen manner, provided the end result meets the performance criteria specified by the Employer.
- Consequently, the Employer should only exercise limited control over the Contractor's work. There is no reference to an Engineer in the Silver Book. This is because the Employer's reduced influence on the engineering generally



Silver book (4)

- Checking of engineering is more concentrated on validating the end performance and validating the potential ease of operation, maintenance and spares.
- The Silver Book provides conditions relating to ‘Tests on Completion’ and Taking Over only takes place after successful completion of the tests.
- Such provisions are important for EPC/Turnkey projects where the purpose of the contract is to provide the Employer with a working facility



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Gold book (1)

- DBO Contract
- Following publication of the Orange Book in 1995 and the Red, Yellow and Green Books in 1999 it became clear that there was a growing need for a contract combining a design-build obligation with a long-term operation commitment.
- a “green-field” DBO scenario with a 20 year operation period and a single contract awarded to a single contracting entity (which will almost certainly be a consortium or joint venture) to optimise the coordination of innovation, quality and performance, rather than award separate contracts for design-build and for operation.

Green Field is a project that is built from scratch and it lacks constraints of prior work.



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Gold book (2)

- Users who wish to adopt the conditions for use with a different scenario (such as a brown field operate, design, build) or with an operation period significantly different to the 20-year period assumed, are referred to the DBO Contract Guide which identifies the clauses which will require amending by including Special Provisions, and gives comprehensive guidelines and suggestions on how the various issues should be addressed. Successful performance of a long-term DBO contract requires that the parties fully understand the overall time framework and the need for a long-term commitment by both the employer and the contractor. It has therefore been necessary to introduce new procedures and new terminology which are not to be found in the other FIDIC forms of contract.

Brown Field :a land or building or infrastructure which was operational in the past but now it is not in use or in idle condition. 20



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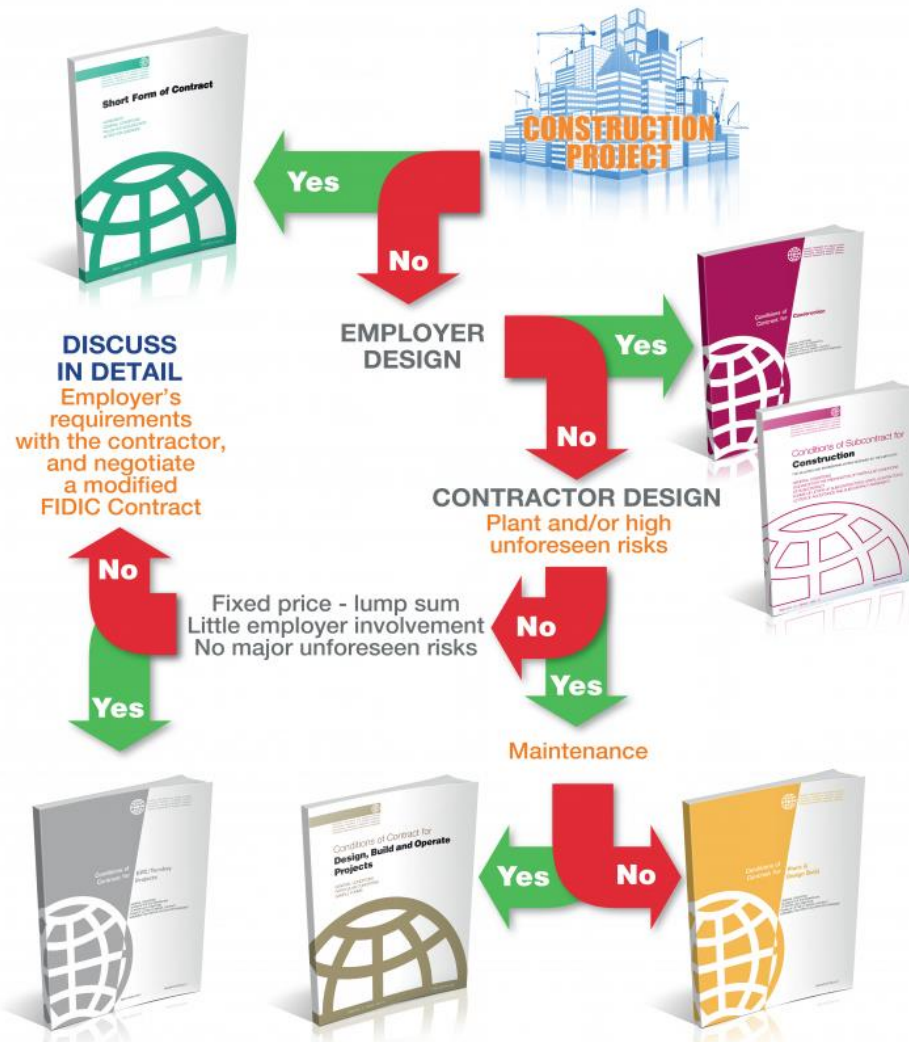


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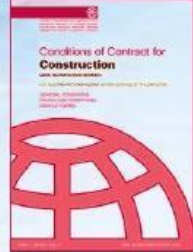





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Comparison of FIDIC General Condition

1. 一般規定
2. 業主；
3. 工程師(司)；
4. 承包商；
5. 指定的分包商；
6. 職員和勞工；
7. 人機料
8. 開工、延遲與停工；
9. 竣工檢驗；
10. 業主的接收；
11. 缺陷責任；
12. 計量與計價；
13. 變更與調整；
14. 契約價格與付款；
15. 業主提出終止；
16. 承包商提出停工與終止；
17. 風險與責任；
18. 保險；
19. 不可抗力
20. 索賠、淡爭端與仲裁

Comparison of General Condition (among the FIDIC Main Forms of Contract)						
Red Book 1999	Red Book MDB / Pink Book / 2005-2010	Yellow Book 1999	Silver Book 1999	DBO Gold Book 2008	Green Book 1999	Blue Book 2006
						
Clause 1. General Provisions						
Clause 2. The Employer						
Clause 3. The Engineer			Clause 3. The Employer's Administration	Clause 3. The Employer's Representative	3. The Engineer	
Clause 4. The Contractor						
Clause 5. Nominated Subcontractors		Clause 5. Design			Clause 5. Design by the Contractor	
Clause 6. Staff and Labour						
Clause 7. Plant, Material, and Workmanship						
Clause 8. Commencement, Delays and Suspension				Clause 8. Commencement, Completion and Programme,		
				Clause 9. Design-Build		
				Clause 10. Operation Service		
Clause 9. Tests on Completion				Clause 11. Testing		
					Clause 6. The Employer Liabilities	Clause 6. Defined Risk
Clause 10. Employer's Taking Over						Clause 7. Time for Completion
Clause 11. Defects Liability						Clause 8. Taking - Over
Clause 12. Measurement and Evaluation		Clause 12. Tests after Completion		Clause 12. Defects		Clause 9 Remedying Defects
Clause 13. Variations and Adjustments						
Clause 14. Contract Price and Payment						
Clause 15. Termination by Employer						
Clause 16. Suspension and Termination by Contractor						
					Clause 12. Default	
Clause 17. Risk and Responsibility				Clause 17. Risk Allocation		Clause 13. Risk and Responsibility
				Clause 18. Exceptional Risk		
Clause 18. Insurance				Clause 19. Insurance		Clause 14. Insurance
Clause 19. Force Majeure						
Clause 20. Claims, Disputes and Arbitration					Clause 15. Resolution of Disputes	

Note: Excluding Red Book / MDB Red Book, the Designer is obliged to obtain the consent of the Employer, and there is an attendance obligation of design meetings with the Employer (Yellow, Silver, Gold Book).



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New(1999)/old



Responsibility

- Under the new Books, the Contractor's responsibility before takeover now extends not merely to the Works, materials and Plant but, in addition, to:
 - 1. "Goods": a new defined term in the new Books-which would include Contractor's Equipment, whether on or off the Site; and
 - 2. "Contractor's Documents": also a new term-which would include computer software and documents of a technical nature supplied by the Contractor.



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Profit

- In general, the Contractor is only entitled to recover his cost, but in the case of paragraph (f) (use or occupation by the Employer), and paragraph (g) (design by the Employer), the Contractor is entitled to "reasonable profit" as well. The theory here is that these are cases where the Employer is, in effect, in 'reach of contract and, therefore, the Contractor should be entitled to recover his profit, whereas in the other cases the Employer is not at fault and, therefore, there should be some sharing of risk by the Contractor, by his giving up an entitlement to profit.
- As paragraphs (f) and (g) are not contained in the list of Employer's Risks in the EPC.



Indemnity

- Under the new Books, the Contractor continues to be responsible for losses or claims that arise out of, or as a consequence of, the Contractor's design (if any) and execution of the Works and remedying defects. However, while the Contractor must indemnify the Employer for losses or claims for bodily injury, disease or death of any person, regardless of whether or not the Contractor was negligent (unless positively caused by the Employer or his agents) recognizing the Contractor's overriding control over Site operations, the Contractor is only liable to indemnify the Employer for property damage where the Contractor has been negligent or committed a breach of contract (Sub Clause 17.1(b)).



Claims of contractors 1/2

- If the Contractor considers himself to be entitled to an extension of the Time for Completion and/or additional payment under any Clause of the Conditions or otherwise, the Contractor must give notice to the Engineer or the Employer (depending on the contract concerned) as soon as practicable and "not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance" giving rise to the claim. If the Contractor fails to do so, the Time for Completion will not be extended and the Contractor shall not be entitled to additional payment (Sub-Clause 20.1).
- Within 42 days after the Contractor became aware, or should have become aware, of the event or circumstance giving rise to the claim (or within such other period as the Engineer or Employer may approve), the Contractor is required to send to the Engineer or Employer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect, further procedures need to be complied with (see Sub-Clause 20.1(a), (b) and (c)).



Claims of contractors 2/2

- Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer or the Employer and approved by the Contractor, the Engineer or Employer must respond "with approval, or with disapproval and detailed comments". He may also request any necessary further particulars "but shall nevertheless give his response on the principles of the claim within such time".



force majeure Clause

- if execution of substantially all the Works in progress is prevented for a continuous period of 84 days, or for multiple periods which total more than 140 days, by force majeure, either party may, after notice to the other, terminate the contract, in which event the Contractor will be paid for work done only.
- The force majeure Clause further provides (Sub-Clause 19.7) that notwithstanding any other provision of the contract (including Sub-Clauses 19.1 to 19.6), if performance of the contract becomes illegal (e.g. as may happen should the site become a war zone) or impossible (e.g. as may happen where the site is totally destroyed by an earthquake or flood), or the parties are released from performance under the applicable law (e.g. under the common law doctrine of frustration or the civil law doctrine of force majeure as provided for in the applicable civil code),⁸ then upon notice by either party to the other party, the parties are discharged from further performance of the contract, implying that the contract comes to an end forthwith. It is unnecessary to wait 84 days. Where the contract is terminated on this basis, the Contractor is paid the same amount as he would be paid if the contract were terminated for force majeure (as defined in Sub-Clause 19.1)



Termination by the Employer

- As will be recalled, under the old Red Book, where the Contractor had committed an event of default, the Employer had to give 14 days notice before he could "terminate the Contractor's employment" (Sub-Clause 63.1) . While the same notice period generally applies under the new Books, it is also provided there that the Employer may terminate the contract "immediately" in a case where the Contractor becomes bankrupt or commits bribery (Sub-Clause 15.2). No prior notice is required.



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Suspension by the Contractor

- 1. in the case of the new Construction Contract, where the Engineer fails to certify a payment certificate when he should do so; and
- 2 where the Employer fails to provide reasonable evidence that financial arrangements have been made and are being maintained to enable the Employer to pay the Contract Price in accordance with the contract payment schedule (Sub-Clauses 16.1, 14.6 and 2.4).



Termination by the Contractor

- 1. where the Contractor does not receive reasonable evidence of the Employer's financial arrangements within 42 days after giving a notice to suspend on this account; and
- 2. in the case of the new Construction Contract, where the Engineer fails, within 56 days after receiving a payment application and supporting documents, to issue the relevant payment certificate.



Claims of employer

- "If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise ..., and/or to any extension of the Defects Notification Period, the Employer or the Engineer shall give notice and particulars to the Contractor."



Standing (full-term) Dispute Adjudication Board ("DAB")

- The number of members of the DAB may be one or three. Whether one or three persons are preferable will depend, among other things, on the size of the project, its duration and the field or fields of expertise likely to be required. Where the estimated Contract Price exceeds US\$ 25 million (25*30=7.50 000 000億NTD), FIDIC suggests three members.
- In the case of a standing DAB, the DAB is required to be kept regularly informed of the progress of the Works and to visit the site regularly e.g. at least three times in any year. The Employer and the Contractor must provide each member of the DAB with a copy of all contract documents and papers that he may request



Ad-hoc DAB

- 1. A Party gives notice of its intention to refer a dispute to the DAB (Sub-Clause 20.2);
- 2. Within 28 days thereafter, the parties must jointly appoint a DAB (Sub-Clause 20.2). If the parties fail to do so, then the procedure for appointing a DAB where there has been a default applies (Sub-Clause 20.3) in order to permit the DAB to be constituted;
- 3. After a DAB has been appointed, a party may refer a dispute to the DAB for its decision. The DAB has 84 days in which to give its decision which must be reasoned and is binding on the parties. If a party is dissatisfied with the decision it must give a notice of dissatisfaction to the other party within 28 days after receiving the decision (Sub-Clause 20.4);
- 4. Where either party has given such a notice of dissatisfaction, the parties are required to attempt to settle the dispute amicably for 56 days (Sub-Clause 20.5) and 5. After the expiration of such 56 day period (and assuming no amicable settlement),



DAB and arbitration

- Once an arbitration begins, the new Books make clear that either party may raise any argument or submit only evidence related to the dispute in the arbitration and is not bound by the position it has taken towards the DAB or in its notice of dissatisfaction with the DAB's decision:
- The new Books also make clear that any decision of the DAB will be admissible in evidence in the arbitration (Sub-Clause 20.6). Therefore, the party which has elected to challenge the DAB's decision must be prepared to demonstrate to the arbitral tribunal why it was wrong.



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RED Book /Pink book (1)

- 2.4: Employer's Financial Arrangements
- Red Book
 - the Employer is required to submit reasonable evidence that financial arrangements have been made and are being maintained to enable the Employer to pay the Contract Price, within 28 days of the Contractor's request to do so.
- Pink Book
 - the Employer to submit the reasonable evidence “before the Commencement Date” as well as within 28 days of the Contractor's request. In addition, the evidence that the Employer provides must demonstrate that it is able to pay Contract price “punctually”.



RED Book /Pink book (2)

- 2.5: Employer's Claims
- Under the 1999 Red Book
 - the Employer is required to submit reasonable evidence that financial arrangements have been made and are being maintained to enable the Employer to pay the Contract Price, within 28 days of the Contractor's request to do so.
- The Pink Book
 - the Employer must still give notice as soon as practicable
 - but (in any event) the notice must be given within 28 days of the Employer becoming aware, or when it “should have become aware”, of the circumstances giving rise to the notice. This appears to be a more onerous provision for the Employer. However, the words “should have become aware” makes it difficult to operate as a condition precedent.



RED Book /Pink book (4)

- 3.5: Determinations
- Red Book
 - the Engineer is required to give the Contractor and the Employer notice of its determination of any matter not agreed between the parties.
- Pink Book
 - the Engineer is required to give the Contractor and the Employer notice of its determination of any matter not agreed between the parties
 - a time limit for the determination (28 days from receipt of the corresponding claim or request)



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RED Book /Pink book (5)

- 4.2: Performance Security
- Red Book
 - In the events.....
- Pink Book
 - Except for the amount entitled.



RED Book /Pink book (7)

- 16.1: Contractor's Entitlement to Suspend Work
- Pink Book
 - If the Bank suspends payment of the funds from which the Contractor is paid, and no alternative funds are available, the Contractor can suspend or reduce the rate of work it performs at any time (having received a notice from the Bank).



RED Book /Pink book (8)

- 16.2: Termination by Contractor
- Red Book
 - the Employer to fail to perform its obligations under the Contract.
- Pink Book
 - the Employer to fail to perform its obligations under the Contract.
 - If the Bank suspends the loan or credit from which the Contractor is paid and 14 days after the Contractor has followed the payment mechanism under sub-clause 14.7 it has still has not received the sums due to it, the Contractor can suspend work, reduce its rate of work or terminate the Contract.
 - • If the Contractor does not receive the Engineer's instruction to commence work 180 days after the Letter of Acceptance, the Contractor may terminate the Contract.



RED Book /Pink book (9)

- 17.6: Limitation of Liability
- Red Book
 - Other than Payment on Termination and Indemnities.
- Pink Book
 - Other than Delay Damages ;
 - Cost of Remedying Defects ;
 - Payment on/after Termination ;
 - Indemnities;
 - Consequences of Employer' s Risks ;
 - Intellectual and Industrial Property Rights .

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RED Book /Pink book (10)

- 20.1: Contractor's Claim
 - Red Book
 -
 - Pink Book
 - 42 days



Yellow book /silver book

- If there is insufficient time or information for tenderers to scrutinise and check the Employer's Requirements or for them to carry out their designs, risk assessment studies and estimating;
- If construction will involve substantial work underground or work in other areas which tenderers cannot inspect, unless special provisions are provided to account for unforeseen conditions or
- If the Employer intends to supervise closely or control the Contractor's work, or to review most of the construction drawings.
- FIDIC : **D/B** (提供基本設計、設計審查)與EPC



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THE CONTRACTOR

- 4.1 Contractor's General Obligations
- 4.2 Performance Security
- 4.3 Contractor's Representative
- 4.4 Subcontractors
- 4.5 Nominated Subcontractors
- 4.6 Co-operation
- 4.7 Setting Out
- 4.8 Safety Procedures
- 4.9 Quality Assurance
- 4.10 Site Data
- 4.11 Sufficiency of the Contract
- 4.12 Unforeseeable Difficulties
- 4.13 Rights of Way and Facilities
- 4.14 Avoidance of Interference..
- 4.15 Access Route
- 4.16 Transport of Goods
- 4.17 Contractor's Equipment
- 4.18 Protection of the Environment
- 4.19 Electricity, Water and Gas
- 4.20 Employer's Equipment and Free-Issue Material
- 4.21 Progress Reports
- 4.22 Security of the Site
- 4.23 Contractor's Operations on Site
- 4.24 Fossils



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Unforeseeable Difficulties

- If the Works include tunnelling or other substantial sub-surface construction, it is usually preferable for the risk of unforeseen ground conditions to be allocated to the Employer. Responsible contractors will be reluctant to take the risks of unknown ground conditions which are difficult or impossible to estimate in advance.
- The Conditions of Contract for Plant and Design-Build should be used in these circumstances for works designed by (or on behalf of) the Contract.



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4.12 Unforeseeable Difficulties

- Except as otherwise stated in the Contract
- (a) the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Works;
- (b) by signing the Contract, the Contractor accepts total responsibility for having foreseen all difficulties and costs of successfully completing the Works; and
- (c) the Contract Price shall not be



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4.12 Unforeseeable Physical Conditions

- In this Sub-Clause, “physical conditions” means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.
- If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Engineer as soon as practicable.
- This notice shall describe the physical conditions, so that they can be inspected by the Engineer, and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Engineer may give.
- If an instruction constitutes a Variation, Clause 13 [*Variations and Adjustments*] shall apply.



5.1 General Design Obligations (? BOOK)

- The Contractor shall carry out, and be responsible for, the design of the Works. Design shall be prepared by qualified designers who are engineers or other professionals who comply with the criteria (if any) stated in the Employer's Requirements. Unless otherwise stated in the Contract, the Contractor shall submit to the Engineer for consent the name and particulars of each proposed designer and design Subcontractor.
- The Contractor warrants that he, his designers and design Subcontractors have the experience and capability necessary for the design. The Contractor undertakes that the designers shall be available to attend discussions with the Engineer at all reasonable times, until the expiry date of the relevant Defects Notification Period.



5.1 General Design Obligations (? BOOK)

- Upon receiving notice under Sub-Clause 8.1 [*Commencement of Works*], the Contractor shall scrutinise the Employer's Requirements (including design criteria and calculations, if any) and the items of reference mentioned in Sub-Clause 4.7 [*Setting Out*]. Within the period stated in the Appendix to Tender, calculated from the Commencement Date, the Contractor shall give notice to the Engineer of any error, fault or other defect found in the Employer's Requirements or these items of reference.
- After receiving this notice, the Engineer shall determine whether Clause 13 [*Variations and Adjustments*] shall be applied, and shall give notice to the Contractor accordingly. If and to the extent that (taking account of cost and time) an experienced contractor exercising due care would have discovered the error, fault or other defect when examining the Site and the Employer's Requirements before submitting the Tender, the Time for Completion shall not be extended and the Contract Price shall not be adjusted.



5.1 General design obligations 1/2

- The Contractor shall be deemed to have scrutinised, prior to the Base Date, the Obligations the Employer's Requirements (including design criteria and calculations, if any). The Contractor shall be responsible for the design of the Works and for the accuracy of such Employer's Requirements (including design criteria and calculations), except as stated below.
- The Employer shall not be responsible for any error, inaccuracy or omission of any kind in the Employer's Requirements as originally included in the Contract and shall not be deemed to have given any representation of accuracy or completeness of any data or information, except as stated below. Any data or information received by the Contractor, from the Employer or otherwise, shall not relieve the Contractor from his responsibility for the design and execution of the Works.



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5.1 General design obligations 1/2

- However, the Employer shall be responsible for the correctness of the following portions of the Employer's Requirements and of the following data and information provided by (or on behalf of) the Employer:
 - (a) portions, data and information which are stated in the Contract as being immutable or the responsibility of the Employer,
 - (b) definitions of intended purposes of the Works or any parts thereof,
 - (c) criteria for the testing and performance of the completed Works, and
 - (d) portions, data and information which cannot be verified by the Contractor, except as otherwise stated in the Contract.



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一元租金方案

資格：臺灣個人或公司法人擬至馬來西亞成立辦公室可填寫下表經本中心送英國雷丁大學馬來西亞分校同意即可以僅繳交水電管理費外，享有一元租金方案。

公司名稱(個人填姓名) *

負責人姓名(個人填同上) *

聯絡人姓名(個人填同上) *

簡介(在馬來西亞預定業務內容)

淡江大學工程法律研究發展中心

- 本中心於2010年8月於淡江大學正式成立，為校級中心。
- 司法院全國性鑑定機構。
- 主任：淡江大學土木系 范素玲博士
- 工程技術鑑定委員會主委：台灣世曦股份有限公司前董事長、行政院工程會前副主任委員、中央大學前工學院院長 李建中博士。
- 法律諮詢委員會主委：政大前法學院院長 黃立博士 擔任。



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臺馬數位科技國際中心

Taiwan-Malaysia

Digital Technology International Centre (DiTIC)

- 本中心於2017年11月1日於英國雷丁大學馬來西亞分校(University of Reading Malaysia, UoRM)成立
- 以BIM API、VR、AR與大數據、專案管理為研究核心，不以BIM API、VR、AR與大數據、專案管理為侷限；
- 以淡江大學出發，不以淡江大學為範圍
- 邀請台灣、馬來西亞以及南向國家各大學、各教授、各產業、各政府機關共同參與
- 致力成為臺馬與臺灣及各南向國家間科技研究、人才培育與技術發展之雙向交流核心前哨站。



服務項目1~工程技術鑑定報告、專家意見書及工程法律顧問諮詢

- 接受各級法院、仲裁協會囑託之工程技術鑑定或機關、產業界委託之專家意見書或顧問諮詢服務。

首頁 服務項目 會員平台 關於我

BIM API、VR、AI、大數據、專案管理、工程法律委託

工程技術鑑定

交流活動與教育訓練課程

工程技術鑑定

由「淡江大學工程法律研究發展中心」工程技術鑑定委員會(由台灣世曦股份有限公司前董事長、行政院公共工程委員會前副主任委員、中央大學前工學院院長李建中博士擔任主委)，並由政大前法學院院長黃立博士擔任法律諮詢委員會主委以及淡江大學土木系副教授范素玲博士擔任主任，接受各級法院、仲裁協會、調解委員會囑託或工程產業委託之工程技術鑑定或機關、產業界委託之專家意見書或顧問諮詢服務。

- + 服務項目
- + 作業流程
- + 鑑定機制



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服務項目2~BIM API、VR、AR、AI、Big Data、專案管理、工程法律委託案

- 本中心組成團隊接受各界委託提供專案管理、工程法律及資訊技術服務。

The screenshot displays the website for the Center for Construction Law and Engineering Management. The top navigation bar includes links for '首頁' (Home), '服務項目' (Service Items), '會員平台' (Member Platform), and '關於我' (About Us). A dropdown menu under '服務項目' lists 'BIM API、VR、AI、大數據、專案管理、工程法律委託' (highlighted with a red box), '工程技術鑑定', and '交流活動與教育訓練課程'. The main content area features three video thumbnails: a 3D architectural rendering of a building facade, a VR interior view of a room, and a VR interior view of a bathroom. Below the thumbnails, there is a disclaimer in Chinese: '因產學合作案涉保密條款，相關成果不便公開。本作品為淡江大學土木工程學系大三學生之專題作業，題目：我的別墅我做主。指導教授：范素玲老師/組長：黃冠博/組員：李盈維、謝詔全、陳煒傑、李柏昕、林振鐸'.



服務項目3~教育訓練課程與國際交流活動

- 不定期開辦專題課程、產業專班、學分班與國際交流活動。



由「專案管理與資訊科技國際聯合中心」與「淡江大學工程法律研究發展中心」共同合作辦理，不定期開辦以工程專案管理主，但不侷限於上述主題之實體與網路專題課程、產業專班與學分班。

近日活動與課程

大學入學制度座談會

今年大學申請入學發生輔大醫學系招不到學生的窘境，多所名校缺額甚多，然亦有一成的滿級分生落榜，凸顯了申請入學為解決甄試撞期問題及照顧弱勢，提出了三個方案：聯合預分發、聯合筆試、弱勢生方案。我們將邀請教育部及招聯會討論學制度的變革，並邀請台灣大學說明其新方案。希望能在此對話平台上，研議既能確保學生的受教育權益，又能實現學分制度。



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加入會員

「臺馬數位科技國際中心」及「淡江大學工程法律研究發展中心」為達成設立宗旨，與有效率推展，兩中心自2017年11月1日起共同合作，誠摯邀請台灣與馬來西亞之各大學、各教授、各產業以及各政府機關共同參與本平台，攜手合作推動國際科研究與技術創新，以BIM API、VR、AR、Big Data、AI、專案管理與工程法律專業協助解決工程糾紛與提升工程產業。

姓名 / Name *

機構單位 / Institutional unit *

職稱 / Job title *



會員平台1-學校平台

<http://www.constructionlaw.tku.edu.tw/school/>

首頁 服務項目 會員平台 關於我們 聯絡我

學校平台

教授研究人員平台

產業平台

政府機構平台

慈善平台

臺馬食衣住行育樂

徵才

學校平台



- + 研習營隊與交流互訪活動
- + 交換學生
- + 教師教授研究員互訪
- + 雙學位學程



臺馬數位科技國際中心
淡江大學工程法律研究發展中心

會員平台2-教授研究人員平台

<http://www.constructionlaw.tku.edu.tw/professor/>

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- 政府機構平台
- 慈善平台
- 臺馬食衣住行育樂
- 徵才

教授研究人員平台



- + 共同指導
- + 共同著作
- + 共同研究
- + 教授、研究員互訪



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會員平台3-產業平台

<http://www.constructionlaw.tku.edu.tw/industry/>

- 學校平台
- 教授研究人員平台
- 產業平台**
- 政府機構平台
- 慈善平台
- 臺馬食衣住行育樂
- 徵才

產業平台



求職：

- + 委託案
- + 徵才求職
- + 房屋出租買賣
- + 產品及服務拍賣
- + 交換家庭、交換住宿
- + 其他



會員平台4-政府機構平台

<http://www.constructionlaw.tku.edu.tw/public-sector/>

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慈善平台
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徵才

政府機構平台



填表人 *

性別 *

- 先生
 女士

電話 *

Email *



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會員平台5-慈善平台

<http://www.constructionlaw.tku.edu.tw/%E6%85%88%E5%96%84%E5%B9%B3%E5%8F%B0/>

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慈善平台



填表人 *

性別 *

- 先生
 女士

電話 *

Email *

職稱 *



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會員平台6-臺馬食衣住行育樂

<http://www.constructionlaw.tku.edu.tw/taiwan-malaysia-lifestyle/>

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臺馬食衣住行育樂



由「臺馬數位科技國際中心」與「淡江大學工程法律研究發展中心」共同合作，不定期提供各項科研資訊。

食
衣
住
行

資訊分享

歡迎提供臺馬食衣住行育樂等生活資訊，經**審核後**版主將貼文在本頁面供網友參考

填表人 *

性別 *

- 先生
 女士

電話 *



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徵才

徵求軟體工程師/研究員

一、工作地點：淡江大學台北校園（捷運東門站步行三至五分鐘）

二、條件：

1. 程式語言或軟體：（以下之一）

熟悉Microsoft .Net C# 或 Python 或Unity

2. 專長：（以下之一）

AI(Deep learning)、AR、VR、大數據

三、意者請填寫：<https://goo.gl/forms/qFOy1K7dl2MptU2U2>

四、填寫表單後請加line通知 (Line ID : tina517619)

