

FIDIC Latin America Users' Conference

Lima, Peru
12 & 13 September 2017

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FIDIC accredited trainer (fully accredited)

FIDIC assessed and listed Adjudicator

FIDIC Legal Advisor



International Federation of Consulting Engineers



Dr. Hök



- has been involved in a variety of FIDIC projects by assisting the Engineer in particular in Bosnia, Pakistan, Vietnam
- has been involved in the work of consortia between consultants
- speaks French, English and German
 - is a fully accredited FIDIC trainer
 - is a FIDIC listed Adjudicator
 - has served as mediator under FIDIC White Book Agreements
 - is an experienced arbitrator
 - is a court expert
 - is a FIDIC legal adviser (ODB TG, Subcontract D&B) and the former Chair of the FIDIC Trainer Assessment Panel (2011-2016)
 - is a lecturer at Berlin University of Applied Science / Leuphana University

Consulting Engineer

- another name for consultant engineer
 - <https://www.collinsdictionary.com/dictionary/english/consulting-engineer>
- A **consultant** (from Latin: *consultare* "to deliberate") is a professional who provides expert advice.
 - <https://en.wikipedia.org/wiki/Consultant>



Consulting Engineering

- Consulting engineering is a professional service that provides independent expertise in engineering, science and related areas to governments, industries, developers and construction firms.
 - <http://www.engineeringlegacies.com/WhatIs.php>
- Engineers in consulting engineering companies come from virtually every discipline and specialty. These engineers are often referred to as consulting engineers and they participate in project teams to help the consulting engineering firm deliver services to its clients. Opportunities within projects can range from purely scientific or technical roles to coordinating or managerial roles, and combinations thereof depending on the type and size of the project. In many cases, consulting engineers will find themselves coordinating the efforts and activities of other project team members including other disciplines and specialties to ensure effective project delivery. Other consulting engineers will find themselves entirely specialized within their sphere of expertise. This provides a great variety of opportunities for engineers working within the firms.
 - <http://www.engineeringlegacies.com/WhatIs.php>



Protected Name & Profession

- As with many other professions, the professional status and the actual practice of professional engineering is legally defined and protected by law in some jurisdictions.
- Additionally, some jurisdictions permit only licensed engineers (sometimes called registered engineers) to "practice engineering," which requires careful definition in order to resolve potential overlap or ambiguity with respect to certain other professions which may or may not be themselves regulated (e.g. "scientists," or "architects").
- **Ing.** in most Spanish speaking countries (pre-nominal letters) (similar to Dr. or Prof): Argentina, Bolivia, Colombia, Dominican Republic, Ecuador, El Salvador, Honduras, México, Perú, Uruguay, Venezuela.
- In Chile customary practice consists in placing the post-nominal term **ingeniero civil** plus the specialty area, such as ingeniero civil eléctrico, ingeniero civil en minería or ingeniero civil químico.
- **Eng. (engenheiro)** customary practice in post-nominal terms such as: engenheiro civil, engenheiro mecânico, engenheiro electricista, engenheiro florestal, engenheiro agrônomo, engenheiro de segurança do trabalho in Brazil.
 - Registration by CONFEA/CREA in the federation states of Pará, Maranhão, Tocantins, São Paulo and others but to work in more than one state is possible only with "visto."
- **"R.Eng."** registered engineer in Trinidad and Tobago, as accredited by the Board of Engineering of Trinidad and Tobago.



Profession & Licence

- In many cases, only a **licensed/registered** engineer has the authority to take legal responsibility for engineering work or projects (typically via a seal or stamp on the relevant design documentation).
 - Regulations may require that only a licensed or registered engineer can sign, seal, or stamp technical documentation such as reports, plans, engineering drawings, and calculations for study estimate or valuation, or carry out design, analysis, repair, servicing, maintenance, or supervision of engineering work, process or project.
 - In cases where public safety, property or welfare is concerned, it may be required that an engineer be licensed or registered – though some jurisdictions have an "industrial exemption" that permits engineers to work internally for an organization without licensure so long as they are not making final decisions to release product to the public or offering engineering services directly to the public (e.g. consultant).
- Expert witness or opinion in courts or before government committees or commissions can be provided by experts in the respective field, which is sometimes given by a registered or licensed engineer in some jurisdictions.
 - https://en.wikipedia.org/wiki/Regulation_and_licensure_in_engineering



Hot Topics

- **I shall**
 - define the key roles of the Consulting Engineer
 - define the specialist skills and the value that Consulting Engineers can and do bring to a client, financier or community
 - add clarity to why it is imperative to select carefully the best Consulting Engineer, based on quality
 - define the role of the “Engineer” in dispute avoidance and resolution



Key Role



The Key Roles

- Advisor
- Designer
- Manager
- Certifier & Determination Maker
- Mediator
- Expert

& services



FIDIC VIEW

- A full professional service by a Consulting Engineer to a Client for a project comprises five main stages, as follows:
 - (1) investigation and report
 - (2) detailed design and preparation of contract documents
 - (3) arranging a contract
 - (4) services-during-construction
 - (5) acceptance of Works, commissioning of systems, and resolution of final account.
 - <http://fidic.org/node/753>



FIDIC VIEWS

- From another perspective the CE can perform in one of at least the five following roles:
 - (1) the designer employed by a construction contractor,
 - (2) the designer employed by the Owner
 - (3) the holder of the prime contract with the Owner and secure construction services from a third party (either a corporate partner or independent constructor), and
 - (4) be the “trusted advisor” to the Owner by assisting with the planning, investigation, and conceptual design leading to the procurement of the DESIGN BUILD team and as so, act as the Owners representative during the initial planning, design, construction, and commissioning phases.
 - (5) be the Engineer for the purposes of the FIDIC contract (i.e. Red Book or Yellow Book)
 - <http://fidic.org/node/747>



Specialist Skills &



Personal Attributes



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Delivery Systems

- There are numerous delivery systems available for Owners to choose for their projects, inter alia
 - Design, Bid, Build
 - Design & Build / EPC-T
 - Design, Build & Operate
- **But still Consultancy Services will be necessary and indispensable**



Ethics

- The consulting engineer:
 - accepts the responsibility of the consulting industry to society.
 - seeks solutions that are compatible with the principles of sustainable development.
 - at all times upholds the dignity, standing and reputation of the consulting industry.
- This involves
 - Competence
 - Impartiality
 - Integrity





Skills

- **Hard Skills**

- Computer Modelling
- Higher Mathematics
- Civil Engineering
- Mechanical Engineering
- Electrical Engineering
- Language
- Intercultural Skills

- **Soft Skills**

- Creative Thinking
- Problem Solving
- Attention to Details
- Communication Skills
- Leadership Skills
- Teamwork Skills
- Negotiating



Specialist Skills

- Keating, 7th ed., paragraph 13-47 says:
 - "An architect's duties are comparable, in some aspects, to those of ecclesiastical surveyors, of whom it has been said that, they "could not be expected to supply minute and accurate knowledge of the law; but we think under the circumstances they might properly be required to know the general rules applicable to the valuation of ecclesiastical property.""
 - The analogy is not perhaps precise but the point is correct. However in this context knowledge of the law has two elements. **An architect must have an understanding of the fundamental principles of law relevant to construction and an ability to apply those principles in the management and administration of projects and contracts.** However contractual questions do not necessarily require a knowledge of the general law but simply a good understanding of standard forms. That is something which is also to be expected of project managers.
 - See Royal Brompton Hospital National Health Service Trust v. Hammond & Ors [2002] EWHC 2037 (TCC) (11 October 2002), TCC England
- Consultants shall not only exercise due care and skill but also reach decisions [in matters of certification] fairly, holding the balance between their client and the contractor
 - *Sutcliffe v. Thackrah* [1974] AC



and





Quality



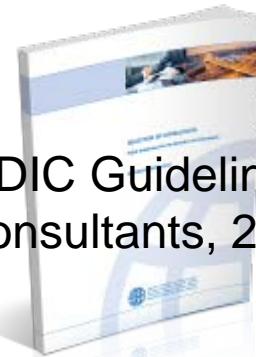
FIDIC Docs



FIDIC Procurement Procedures Guide, 1st Edition, 2011



FIDIC Guidelines for the Selection of Consultants, 2nd Edition, 2013.



Quality Based Selection (QBS) Guidelines (2011)



Value

- Qualifications-Based Selection (QBS) is for instance established by the United States Congress as a part of the Brooks Act[1] (Public Law 92-582; see also 40 USC §1101 et seq.)
- Qualifications Based Selection (QBS) is an objective and fair process used by owners to select a design professional based on the qualifications of the designer in relation to a specific project.



QBS

- **Undeniably the project success depends in particular on**
 - the quality of the design,
 - the clarity of project goals and client criteria,
 - the clarity of scope and work definition,
 - the project team work, and
 - high quality management.
- cf. Shamil Naoum and Daniel Fong and Gary Walker, Critical Success Factors of Project Management, <http://www.irbnet.de/daten/iconda/CIB6060.pdf>; Adam Collins and David Baccariuni, *J. Construct. Res.* **05**, 211 (2004), Albert P. C. Chan, David Scott and Ada P. L. Chan, Factors Affecting the Success of a Construction Project, *Journal of Construction Engineering and Management* © ASCE / JANUARY/FEBRUARY 2004, 153 et seq.



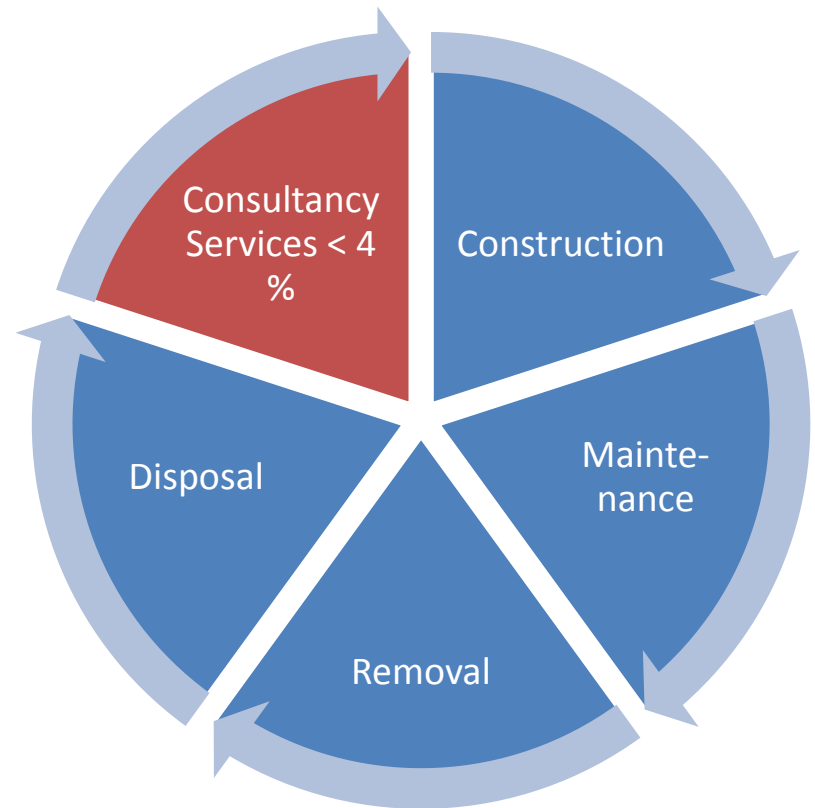
QBS

- According to a two-year study led by the University of Colorado and Georgia Institute of Technology, USA:
 - “Public agencies that use QBS to select Consultants are better able to control construction costs and achieve a consistently high degree of project satisfaction than those using other selection methods”.



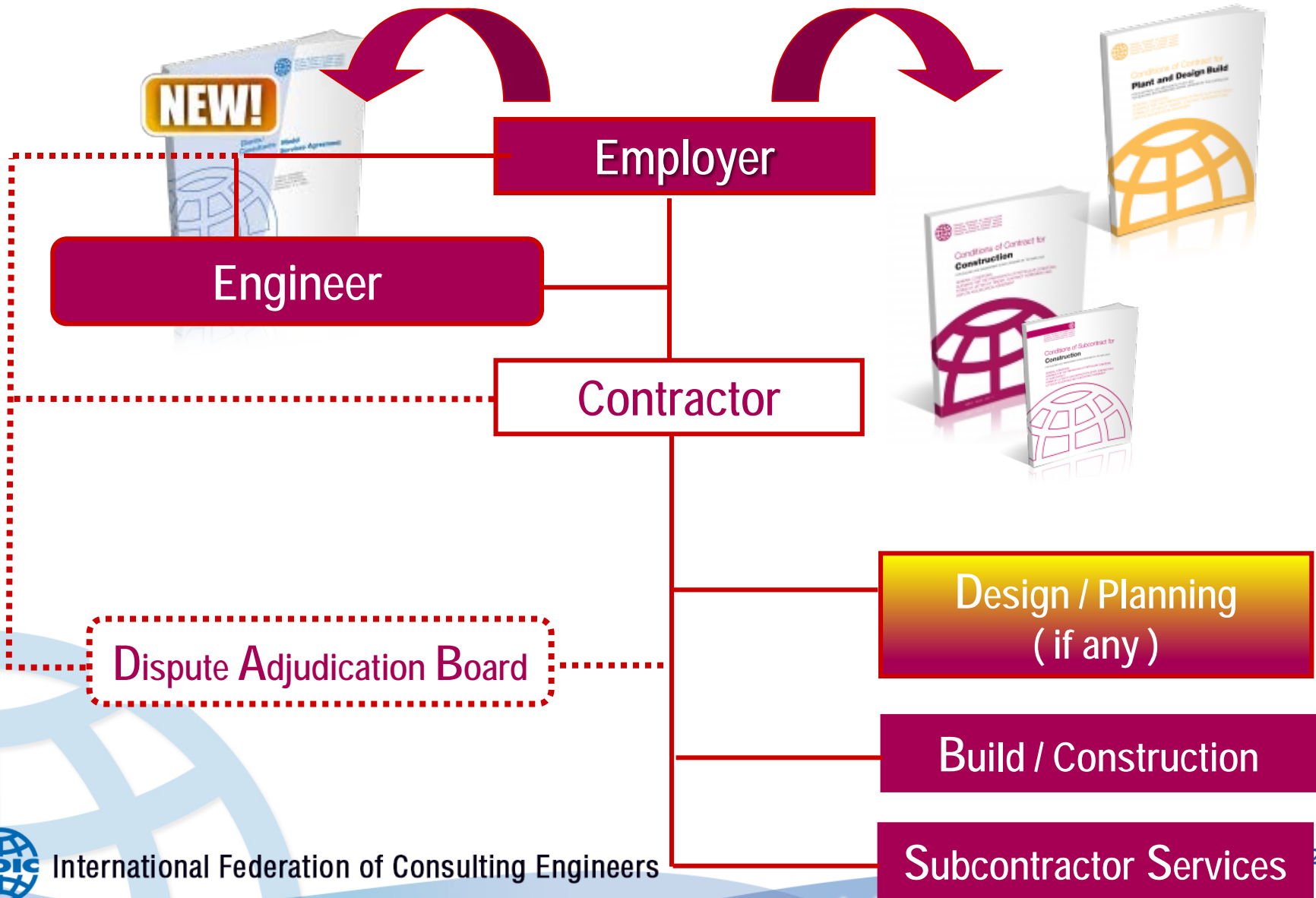
Life cycle costs

- Consultancy services are highly influential on life cycle costs
 - Quality Based Selection ensures the best overall project value.
 - QBS saves money by allowing proper assessment of cost-saving alternatives.



- Role of the “Engineer” in dispute avoidance and resolution





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Dispute Avoidance

- **Ethical Approach:** Consultant Engineer to form a professional opinion - using skill and care
- Contract may require the Consultant Engineer to form a professional opinion using skill and care „with due regard to all relevant circumstances and in accordance with the Contract“
 - → **Sub-Clause 3.5**
- Contract may assign the duty to the Consultant Engineer to consult with both Parties in order to achieve a settlement agreement.
 - → **Sub-Clause 3.5**



Observation

- **Consultants are frequently used as Employer's claims' counsels**
 - This role conflicts with the Consultant's duty to form a professional opinion
 - Inflating Employer's claims not desirable
 - Relying on weak defenses not desirable
 - Creating leeway (exaggerating, etc.) does not fit with the role
 - This role conflicts with the Consultant's „duty“ to avoid disputes – i.e. the duty to consult with both Parties in the endeavour reach a settlement agreement



FIDIC Specials

- Consultant Engineer may have to serve as a witness in adjudication or arbitration
- Argument derived from Sub-Clause 20.6



Summary & Conclusions

- Consulting Engineers provide the industry with:
 - Skills
 - soft skills & hard skills
 - Safety
 - high standards, best practice, insurance
 - Integrity
 - independent & objective advice and decision making



Thank you

- for your kind attention
- For further information
- or your domestic MA



- Asociación de Ingeniería y consultoría Dominicana, Associação Brasileira de Consultores de Engenharia, Asociación de Empresas Consultoras de Ingeniería de Chile, Cámara Colombiana de la Infraestructura (CCI), Asociación de Empresas Consultoras de Ingeniería de Chile, Asociación de Compañías Consultoras del Ecuador, Cámara Nacional de Empresas de Consultoría de México, Cámara Paraguaya de Consultores, Asociación Peruana de Consultoría (APC)

