

**Designer Duties; Pre-commencement of Construction under  
the Traditional Procurement Method in UAE-DUBAI**

واجبات مهندس التصميم في مرحلة ما قبل البناء، في إطار النمط التقليدي  
للمشاريع في دولة الإمارات العربية المتحدة – دبي

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## **Title of Dissertation**

### **DESIGNER DUTIES**

**“Pre-Commencement of Construction under the Traditional Procurement Method in UAE-Dubai”.**

#### **Key Words**

**Pre-Construction – Design – Post construction – Designers – Obligations – Civil Liability – Procurement – Professional – Consultancy – Services – Rules & Regulation – Government Authority - Safe - Durable – Engineers – Civil Law – Duties – FIDIC – Contracts - risk – Assessment – failure – Particular Conditions – Procedures – Supervision – Breach – Decimal liability – Agreement – Risk Assessment – Enlighten – Advisory – Technical – Breach - Knowledge .**

## **Abstract**

This dissertation is aimed to examine the Duties of the designer's "Design Consulting Engineer" at the pre-construction stage, in light of UAE common used agreement, civil law and applicable rules and regulations in association with the profession's measures, ethics and knowledge, as well as review the civil liability of the designer at the design phase caused by designer's failure to comply with their key duties to provide a systematic potential risk assessment, Advisory Capacity, Awareness & Alertness Capacity, the design engineering service and the impacts of such failure on the overall design liability, & the warrantee. In addition to that, it will explore the consequences of breaching the Designer duties, and shall indicate the necessity of an integrated, detailed and comprehensive bylaw and regulation to monitor the designers' duties if required.

## واجبات مهندس التصميم

"في مرحلة ما قبل البناء، في إطار النمط التقليدي للمشاريع في دولة الإمارات العربية المتحدة – دبي"

### ملخص

عملية بناء المباني والمنشآت تمر من خلال ثلاثة مراحل مختلفة، المرحلة الأولى هي مرحلة التصميم و تتضمن إعداد الرسومات والعقود بما في ذلك دراسة الجدوى للمشاريع المزمع تنفيذها، المشتريات، العطاءات وترسية العقود، وهي ما تعرف بمرحلة ما قبل البناء، والمرحلة الثانية، هي مرحلة البناء و التنفيذ، في حين أن المرحلة الأخيرة هي مرحلة الاختبار والتشغيل.

في صناعة البناء والتشييد تكون دائما نسبة الخسارة الجسيمة مرتفعة بالإضافة للحوادث والاصابات مقارنة مع الصناعات الأخرى. لذلك هناك دائما حاجة ماسة للحد من المخاطر في هذه الصناعة و ذلك من خلال تحسين الإدارة و التنسيق للمشاريع عن طريق تعاون جميع الأطراف المشاركة فيه لفهم واجباتهم ومسؤولياتهم الأساسية و الضمنية وخاصة واجبات مهندس التصميم لما يلعبه من دور حيوي في وضع اطار وتصور المشروع والتي يمكن ان تؤثر على مراحل المشروع الثلاثة بالإضافة الى امتدادها ل عشر سنوات من بعد تسليم الامشروع وهو ما يعرف بالضمان العشري.

تهدف هذه الأطروحة إلى دراسة واجبات "مهندس التصميم" في مرحلة ما قبل البناء، في ضوء قانون المعاملات المدنية لدولة الإمارات العربية المتحدة، الإتفاقيات المستخدمة و الشائعة، والقواعد واللوائح المعمول بها بالإضافة لقواعد المهنة والأخلاق وليس آخرها قواعد علم الهندسة.

وبالإضافة إلى ذلك، فإن الأطروحة ستنتظر في مجال مسؤولية استشاري التصميم بنظرة ثاقبة من خلال القوانين المدنية المماثلة والمطبقة في دول الجوار إذا لزم الأمر، والظروف الخاصة بها حسب الحاجة.

لذلك ستركز الأطروحة على المسؤولية المدنية لمهندس التصميم في حالة فشله في تطبيق واجباته المترتبة على العقد وتقديم المشورة بالإضافة لتقييم المخاطر المحتملة، بصفة كإستشاري هندسي ومهندس تصميم، والعواقب المترتبة على مخالفة هذه الواجبات بسبب ضعف أو غموض في شروط العقد وعدم وضوح في الأنظمة ذات الصلة والعقود القياسية مقارنة مع العقد القياسي لشركة نخيل، و ابراز ضرورة وجود نظام متكامل، مفصل وشامل لتنظيم أداء مهندس التصميم إذا لزم الأمر لضمان رسوم تصميم معقولة ومنصفة مقارنة مع الواجبات والمسؤوليات العقدية والمدنية الموكلة لمهندس التصميم. مع الأخذ بعين الاعتبار بأن التوزيع الغير عادل للواجبات والمهام من المؤكد سيعزز بخلق بيئة قوية للنزاعات في المستقبل، وتحديدًا بين الأطراف المتعاقدة والتي ليست على قدم المساواة والقدرة على المساومة.

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Finally, and most importantly, I would like to extend my sincere gratitude to my whole family, who has been a pillar of strength in my achievements, an important and indispensable source of spiritual support. Their encouragement, quiet patience and unwavering love were undeniably the bedrock upon which the past years of my life have been built. Their tolerance of my occasional moods is a testament in itself of their unyielding devotion and love, allowing me to be as ambitious as I wanted. It was under their watchful eye that I gained so much drive and an ability to tackle challenges head on.

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# **1. Introduction**

## **1.1 Preface**

The buildings construction process going through three different phases, the first is design and contract preparation including feasibility study, design, procurement, tender and contract award, which called pre-construction phase, the second, is the construction phase while the last phase is the post construction phase including the testing, commissioning and operation.

The construction industry has always had a disproportionately high level of fatalities, loss, major injuries and incidents of ill-health when compared with other industries. It was identified that there was a need to reduce risk by better coordination, management and cooperation between all parties involved in construction and by understand the duties and responsibilities as a designer, he will fulfil his role on all projects employed for.

This dissertation is aimed to examine the Duties of the designer's "Design Consulting Engineer" at the pre-construction stage, in light of UAE common used agreement, civil law and applicable rules and regulations in association with the profession's measures, ethics and knowledge.

In addition, the dissertation will study the consultant liability with an insight to other the regional similar applicable civil laws if necessary, associated with a common standard contract used in the region, and the custom particular conditions.

The dissertation will underpin the impacts and the consequences of breaching the Designer duties, and will examine if there are any weakness in the used particular conditions or ambiguity in contract conditions and the blurred designer duties in the related regulations and standard contracts, and shall conclude the necessity of an integrated, detailed and comprehensive bylaw and regulation for the designer if required to assure designers reasonable duties and equitable responsibilities towards theirs civil liability.

Taking into account the inequitable allocation of duties and uncertain agreed duties on a construction projects will constantly promote a strong platform for future disputes, specifically when the contracting parties are not on equal bargaining power.

The designer's liability in this study will be limited to the civil liability of the designers towards the clients, contractors and other construction stakeholders, while the criminal liability will not be addressed in details but an outlines review of such liability might be raised during the overview of the applicable law.

The Engineering services in the pre-construction phase will be studied in terms of the contract nature defined via Article 125 of UAE Civil Code Transactions "*An agreement of an offer and acceptance with the intention to produce certain legal effect*".<sup>1</sup>

In the meantime, the dissertation will study the civil liability of the designer in the design phase caused by designer's failure to comply with his key duties to provide thorough potential risk assessment, Advisory Capacity, Awareness & Alertness Capacity, the engineering designer service, and the effects of such failure on the overall design liability, design do-ability & Warrantee.

## **1.2 Aims and Objectives**

This research will examine:

- Designer Contract Attributes and Legal Nature.
- Analyse the Designer Duties throughout the pre-construction Phase.
- Outline the Legal Forms of duties and the limitations of the Designer duty.
- Highlight the relationship between the construction stages and its impacts on the final contractual obligations and potential disputes or emergence of conflicts.
- To recommend the necessity of clear and well defined procedures and duties that to be applied on the general or particular conditions of the contract.

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<sup>1</sup> UAE Civil Code Transactions.

### **1.3 Structure**

This dissertation will be divided into four chapters including the introduction as first chapter; the second chapter will include three main researches; the first research is the definition of the designer and engineer in law, the second is the designer contract's attributes and the last; legal nature of the design contract.

Third chapter will analyse the designer involvement and duties throughout the different pre-construction stages. Which will include the design defects, the designers' duties towards the clients at the design stage by provide an valid enlighten and comprehensive advisory capacity correlated to the engineering perspectives of the intended construction project along with its potential risks and its potential continued effects on the construction at the post construction stage as well as to explore the lack of particular bylaws conditions and regulations. This Chapter will be divided into two main researches; the first research is the obligation of the design engineer under the contract and the second is design engineer involvement and duties at the pre-construction stages.

The dissertation findings and recommendations will be concluding at chapter four.

### **1.4 Methodology**

This dissertation, based on UAE civil code transactions, will define the consultancy contracts and provide the attributes and legal basis of the Designer contracts looking to applicable regional civil laws, using the 3<sup>rd</sup> edition of FIDIC Model Service Agreement format and Nakheel<sup>2</sup> standard local agreement format.

Moreover, dissertation will examine the legal basis for designer's duties to provide comprehensive insight of his key duties to provide constructible, safe and durable designs.

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<sup>2</sup> Nakheel is one of the world's largest real estate developers and a key player in realizing Dubai's vision for the 21st century – creating a world-class destination for living, business and tourism and developing an iconic portfolio of innovative landmark projects in Dubai across a range of sectors - residential, commercial, retail and leisure.

Accordingly, the dissertation will explore and examine the designer duties, its limitations and consequences of designer's failure towards the followed stages and design life span.

### **1.5 Expected Outcomes**

- Necessity to codify the rules governing the design engineers obligations and professional or charter ethics, especially when the consequences for violating those rules yields emergence of disputes and potential criminal offense.
- Necessity to build clear contractual relationship to emphasize the construction engineer endorsement to the designer works and to amend the designer liability jointly with the contractor and construction engineer.

## 2. Who is a Designer?

‘Designer’ has a broad meaning. Designers are those who run a business which involves:

- *“preparing designs for construction work including variations – This includes preparing drawings, design details, specifications, bills of quantities and the specification (or prohibition) of articles and substances, as well all the related analysis, calculations, and preparatory work; or*
- *arranging for their employees or other people under their control to prepare designs relating to a structure or part of a structure”.*<sup>3</sup>

### 2.1 “Designer/Engineer” in law

Any individual or entity play the role of technical engineer and contributes in the construction process regardless of titles, certification, specialization or profession; then he bears the civil liability of the engineer for any design or supervision carried out by him.

Designer is preparing designs for construction, and limited role in the preparation of contract documents, include conditions, certain specifications and any other documents that necessary to determine the works and the required terms of contract without participating in the construction of the structure itself.

Design must be of such documents at the level of competence, efficiency and clarity needed to ensure those who shall use, avoid any mistake or misunderstanding of the intend when interpret or clarify them by their knowledge must also be clear and accurately indicate the elements of the project’s design inclusive all its parts and components according to the work’s stages.<sup>4</sup>

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<sup>3</sup> Duties of a Designer, Construction Design & Management Regulations (2011) CDM2007, 1.

<sup>4</sup> S Frij, Preparation of the documents, tender works and awarding, engineering and construction Contracts Management (2<sup>nd</sup> book, Daranshr, Cairo, 2007) 192-194

In general, the design consulting engineer is obliged to implement his technical skills and knowledge when preparing the designs, where he may be liable under the civil<sup>5</sup> and/or criminal laws, in case of the design failure accordance to the law of UAE as well as other laws of regional countries.

## **2.2 Designer Contract's Attributes**

This section reviews the attributes of the design contract in line with the contract law of UAE civil code transactions. Particular attention will be paid to the definition of the relationships between contracting parties (client and designer) along with their contractual obligations as well as the risk distribution among the parties.

However, designer contract can be drafted in a manner to meet the client's anticipation and target the required engineering service for more accuracy of client needs.

### **2.2.1 Consent to Contract**

Contract is based on a common intention that aiming to the same legal effect. This is made through the concept of consent. Consent or an agreement of the parties exists only when a complete coincidence between the declarations of the will of the different parties is reached. Within a consent purview, the parties will be in agreement, as it will direct to create a particular legal effect. Such to be legally considered, it must be cognitive, serious, precise and intelligible. Consent requires methods of expression and exchanging offer and acceptance.

The consultancy design contract is form, upon both parties; the designer and the client have a mutual consent, which may be oral or written, that bind both parties in a contractual relationship, though in facts; such contracts always are in written.<sup>6</sup>

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<sup>5</sup> Article 881 of UAE Civil Law Transactions *"If the of the architect is restricted to making the plans to the exclusion of supervising the execution, he shall be liable only for defects in the plans"*.

<sup>6</sup> Article 129 (a) of UAE Civil Code transaction *"that the two parties to the contract should agree upon the essential elements"*

### 2.2.2 Professional Contract

From the design agreement definition, we comprehend that it is a professional contract held between two parties, one party is a professional and expert which is the designer and the other party need a certain technical advice. This professional contract is subject to the local civil law.<sup>7</sup>

Arise from the professional contract; that the designer practicing his profession independently. This independency appears by the applicable degree of the required duty of care by the designer when performing his obligations, as well as the client freedom to pursue the provided engineering recommendation.

- **Designer Independency**

Designer in performing the services shall exercise all the reasonable skill, care and diligence of a consultant of his discipline experienced in providing professional services to assure the client requirements. At the initial stage; his assignment is to obtain all required information, facts and objectives from the client to analyze and study these data using his experience in connection with projects of a similar scope, size, complexity and value to provide the best advice. Where this duty is an obligatory on the designer and not associated in his remuneration.

In addition to that, the designer is performing his obligation under his own conscience, morals and the considerate of profession's commitment, goodwill and faithful.<sup>8</sup>

- **Client Independency**

The client selects the designer to perform the contact's obligation, and has the choice to implement the engineering advice. In some cases the client role is limited to join the model consultancy service contract, as an adhesion contract,

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<sup>7</sup> Article 125 of UAE civil transactions "A contract is the coming together of an offer made by one of the contracting parties with the acceptance of the other, together with the agreement of them both in such a manner as determine the effect thereof on the subject matter of the contract, and from which results on obligation upon each of them with regard to that which each is bound to do for the other"

<sup>8</sup> H A Al Shahwan, Civil Responsibility of the consultant Engineer in the construction Contracts ( 2nd edn, Dar Al-Thaqafa, Amman, Jordan, 2012) 36

nevertheless, he remains free to accept and follow the consultation advice or not. Furthermore, client has the freedom to accept the contract that suits his requirements by selecting the appropriate designer.<sup>9</sup>

### 2.2.3 Binding Contract

Consultancy design contract creates reciprocal obligations on both parties; designer is obliged to provide the required consultation and design on the agreed time in accordance to the contract and law, while the client is obliged to pay the remuneration.

### 2.2.4 Juridical Personal Contracts

Engineering consultancy has a judicial personality by law<sup>10</sup>; therefore, the consulting engineer is obliged to perform the contract personally, and in case he bring someone else to perform the contract, that may consider as a breach of the contract<sup>11</sup> and the contract may deem to be null and void unless it has been agreed in the contract.

Article 356(1) of Jordan civil law state “*If the object of the right shall be work and its nature or the provisions of the agreement prescribe that the debtor shall perform it personally the creditor may reject its performance by another*”, Which is in line with the Article 208 of the Egyptian civil law for the “specific performance”.

As a consequence of being a judicial personal contract, that in case of the engineering consultancy licensee<sup>12</sup> death or bankruptcy, the contract may cancel automatically by law Article 280 (2) “*A promise binds the maker unless he die or bankrupt*”<sup>13</sup>.

Furthermore, if the client wants to carry out the work with the heirs, he must conclude a new contract.

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<sup>9</sup> H A Al Shahwan, Civil Responsibility of the consultant Engineer in the construction Contracts ( 2<sup>nd</sup> edn, Dar Al-Thaqafa, Amman, Jordan, 2012) 37

<sup>10</sup> Article 92(e) of UAE Civil Code Transactions define that all “civil and trading company” has a juridical persons.

<sup>11</sup> Article 381(1) of UAE Civil Code Transactions “*if the subject matter of the right is an act which, by its nature or by virtue of a contractual provision, the obligor must perform personally, the obligee may reject the performance thereof by other person*”

<sup>12</sup> Article 93 (3) of UAE civil law transactions “*such persons must have (natural) person to express their intentions*”.

<sup>13</sup> UAE civil law transactions.

## 2.3 Legal Nature of the Design Contract

This section reviews the legal nature of the engineering design contract in line with the contract law of UAE civil code transactions. Particular attention will be paid to the essential elements of the Engineering design contract, the legal or contractual relationship between the parties, legal expert's opinions and the jurisprudential views of these contracts.

Prior to elaborate further on the legal nature of the designer contract it's sensible to review the essential elements of the engineering design contract.

### 2.3.1 Principal elements for the Engineering Design Contract<sup>14</sup>

Engineering design contract must be in consistency with the local law and the international rules and standard to ease the implementation; otherwise it may face many obstacles in performing the contract as well as unanticipated outcomes of arbitration or judicial proceedings. Engineering design contract must consider the following legal basic conditions:

- Formal offer and acceptance,
- Meeting of the minds,
- Legal Purpose,
- Capacity ; and
- The consultancy design contract form.

In the absence of any of the above elements the consultancy design contract may consider void. Therefore, we must address these elements in more details;

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<sup>14</sup> Article 129 of UAE civil law transactions *"The necessary elements for the making of a contract are (1) that the two parties to the contract should agree upon the essential elements;(2) the subject matter of the contract must be something which is possible and defined or capable of being defined and permissible to be dealt in; and (c) there must be a lawful purpose for the obligations arising out of the contract"*.

- **Offer and Acceptance<sup>15</sup>**

An offer is an expression of a willingness to enter into a binding contract. And acceptance must mirror the offer. A declaration of intent, in order to be qualified as an offer it should be furnished by the willingness to be bound, complete, and definite. Ordinarily, acceptance must be expressed or communicated, in order to manifest mutual consent. A declaration of intent should be furnished by it must be manifested, and must be in conformity with the Offer. Acceptance leads to the formation of contract.<sup>16</sup>

In the engineering field, the client invites the designer to participate in the design competition. Upon selecting the winning design ‘Offer’ the clients accept and award the project’s design to the selected design consultancy. In other cases client approaches a specific designer for a certain design due to his precious experience in similar designs as well as his reputation.

- **Agreement<sup>17</sup>**

Existence of mutual understanding and clear mental concept for the necessary terms of the contract is mandatory for the contract formation. Contracts based upon fraud, influence of pressure by others or duress is void and not enforceable by law.<sup>18</sup>

- **Lawful Purpose<sup>19</sup>**

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<sup>15</sup> Article 125 of UAE civil transactions “A contract is the coming together of an offer made by one of the contracting parties with the acceptance of the other, together with the agreement of them both in such a manner as determine the effect thereof on the subject matter of the contract, and from which results on obligation upon each of them with regard to that which each is bound to do for the other”

<sup>16</sup> W Arakeeb, The Vitality Of Construction Contract Provisions Within The Scope Of The Egyptian Legal System, Annual conference 18<sup>th</sup> Building & Construction Contracts between Traditional Legal Rules and developed Legal System, UAE University, April 2010.

<sup>17</sup> UAE civil transaction Article 129 (a) “That the two parties to the contract should agree upon the essential element”.

<sup>18</sup> Article 182 and 187 of UAE Civil Code transaction “A person who exercises either kind of duress to conclude a contract may not enforce his contract”, “ If one of the contracting party makes a misrepresentation to the other and it transpires that the contract was concluded by a gross cheat, the person so misled may cancel the contract”

<sup>19</sup> Article 129 (c) of UAE Civil Code transaction “There must be a lawful purpose for the obligations arising out of the contract”.

Contract may consider void and null if the purpose of forming it is in contrary to public order, morals, laws, or local rules and regulation; such as contracts involving crimes, fraud or deceit or being a part of contract related to conspiracy, collusion, or gambling subject.

It is worth mentioning that party enter into an illegal contract without the knowledge of its purpose, it does not relieve him from the responsibility in the case of injuries or damages<sup>20</sup>. Therefore it is expected that all parties are fully aware of the legal consequences of the contract before signing it.

▪ **Capacity**<sup>21</sup>

Parties must have the capacity to form a contract; that is, they must be over 18 and of sufficient mental capacity for the contracting individual according to the UAE civil code article 168<sup>22</sup>. The company's capacity starts upon the formal establishment<sup>23</sup> and its capacity is limited within the trade license activities<sup>24</sup>.

When a design engineer enters to a contract; for a project, he must have the capacity to design the subject project according to his trade license activity and classification which is rule by concerned municipality. For example a consultant with building design activity only cannot enter to a contract for infrastructure design, and a consultant with a permit for building design for ground plus four floors cannot enter to a contract to design a tower as it is not within his capacity limit.<sup>25</sup>

Under clause 1.16 of the 'Warranties as to capacity' of the general condition the consultant is undertake that he has the full capacity to perform his obligations under the said agreement as state "The Consultant warrants that

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<sup>20</sup> Article 296 of UAE Civil Code transaction state "Any conditions purporting to provide exemption from liability of harmful act shall be void"

<sup>21</sup> Article 157 of UAE Civil Code transaction state "Every person shall have capacity to contract unless the capacity is taken from him or restricted by operational of law".

<sup>22</sup> "Minors ,insane persons and imbeciles shall be ipso facto under a restriction".

<sup>23</sup> F M Sami, Commercial establishments in UAE Law (2<sup>nd</sup> Ed, 2010) 62-63

<sup>24</sup> UAE civil transaction Article 93 -2 (b) "Legal capacity within the limits laid down by the document establishing it, or as laid down law".

<sup>25</sup> Local Order no. 3, 1999 for construction works control, Dubai Municipality.

(a) it has obtained from all relevant Authority all licenses, permission and consents required in order for it to perform the Services and to perform all of its obligations under this agreement; and (b) it has the facilities, information technology, capability, experience, management expertise, financial resources, equipment, staff and other facilities necessarily required to perform the Services in competent and expeditious manner” and in case of any dispute prejudice this undertaking may consider as a breach of a contract. Moreover clause 1.24 “The Consultant must at its cost: (a) at all times during the performance of the Services be; and (b) ensure that any person who carries out any part of the Services is, registered and/or licensed as required by any Law for performing the Services” is strict which enforce the consultant to undertake that his staffs who are carrying the service under the agreement to be register and licensed according to the applicable rules and regulation.

### **2.3.2 Contractual Relationship**

The importance to study the legal relationship of the design engineer contract type; is that to clarify the contractual obligations for each nature.

There are differences of defining the contract legal nature:

- **Contract of Agency**

UAE civil code, article 924 defines the contract as “*Agency is a contact whereby the principle puts another person on the place of himself in an ascertained, permitted dealing*”, while article 833 of Jordan civil law defines as “*The agency is a contract by virtue of which the principal appoints another person on his behalf for a certain permissible disposition*”. Furthermore, the Egyptian and the Syrian civil laws have an identical purview “*Agency is a contact whereby the agent committed to perform a legal action on behalf the principal*“.<sup>26</sup>

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<sup>26</sup> Article 699 of Egypt civil law and article 665 of Syria civil law.

Some perceive that design engineer, is acting as an agent for the client due to the following reasons:

- i. The agent 'design engineer' acts on behalf the client and under his name, and at the same time perform his duty in independence.
- ii. Design engineer contract is similar to agent contract as both of them have juridical personals.

As a response on the above perception, the design engineer neither deals with the client name nor represents him legally, in addition to that, the design contract is a binding contract and it effect both parties, while in agency contract it effect the principal only.<sup>27</sup>

The main duty of the design engineer is to provide design for the client, however if the client require the design engineer to act on his behalf and represent him legally, then the contract is an agency.

#### ▪ **Contract of Sale**

UAE civil code, article 489 has defined the sale contract as "*a sale is the exchange of non money property for money*", while article 833 of Jordan civil law define it as "*The sale is the transfer of ownership of property or financial right for consideration*". Furthermore, the Egyptian and the Syrian civil laws have identical purviews<sup>28</sup>; where we can find by these purviews that, the contract of sale are kind of contracts that transfer the ownership of any property or financial right for money. In general, the law does not deprive of transfer of the ownership as far as the subject matter is lawful and not in contrary with the public order or morals.

By comparing this to the design engineer contract, we can find a similarity, where the 'mental works' the subject matter of this contract has its own commercial value and a price, however, this definition is difficult to implement as the design engineer is provide service and not sale it; except in

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<sup>27</sup> S I Al Sarqawi, Source of consent obligation in UAE civil code transaction, contract and unilateral behavior, College of Law, Ajman University of Science and Technology (2011) 77

<sup>28</sup> Article 418 of Egypt civil law and article 386 of Syria civil law.

case where the client require to transfer these ‘mental works’ to his ownership and become as a condition in the contract.<sup>29</sup>

- **Adhesion Contract**

Is a contract that one of the parties has the power of monopoly to set conditions of the contract, while the other contracting party role is limited role to accept these conditions and the obligations in and does not have the authority to discuss or change.<sup>30</sup>

In engineering field, there are two angles for adhesion contracts; the design engineer could be the monopolist, due to his technical knowledge and skills comparing to the client, or the client; particularly when he represent a government entity as most of the government contracts are adhesion contracts.

- **Contract of Muqawala**

UAE civil code article 872 has define muqawala contract as “*A muqawala is a contract whereby one of the parties thereto undertakes to make a thing or to perform work in consideration which the other party undertakes to provide*”, while article 780 of Jordan civil law define it as “*The contract for independent work is a contract by virtue of which one of its two parties undertakes to manufacture an object or to perform work for a consideration which the other party undertakes*”, which is identical to the previews of Egyptian and Syrian civil laws.<sup>31</sup>

Consulting engineer contract is a muqawala contract but has its own attributes and characteristics that vary from the other muqawala contracts. The subject of this contract is very special and unique which must accommodate the client certain needs.

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<sup>29</sup> S I Al Sarqawi, Source of consent obligation in UAE civil code transaction, contract and unilateral behavior, College of Law, Ajman University of Science and Technology ( 2011) 120.

<sup>30</sup> S I Al Sarqawi, Source of consent obligation in UAE civil code transaction, contract and unilateral behavior, College of Law, Ajman University of Science and Technology (2011)125.

<sup>31</sup> Article 646 of Egypt civil law and article 612 of Syria civil law.

The design engineer duty is to visualize the structural project, and develop the required design that suit the client needs and submit these plans and drawings to the client, though the submission is a subsidiary obligation.

From the above review, we can conclude that the consulting engineer contract is a muqawala contract, however, has its own privacy which we can illustrate at as the follow:

- i. Muqawala contracts can be applied for various “*make a thing*”<sup>32</sup> contracts, which each one has its special and private characteristics, While retaining the general characteristics of the muqawala contract.
- ii. Muqawala contracts can adopt various professions, which the performances have a mental works’ nature, such as legal consulting.
- iii. The similarity of the design engineer and muqawala contracts, that both are a consensual contract, as well as it’s a commutative contracts<sup>33</sup>, although the design engineer perform independently and does not fall under the client’s supervision and Censorship.
- iv. Though the design engineer provide studies and plans that has nature of mind, however, performance abide by engineer for the client.

Referring to Muqawala article 872 of UAE civil code transactions, the object of a contract is to “*make thing or to perform work in consideration*”; therefore it appears that the mental and intellectual performance falls under this description, and may consider as an object of ‘Muqawala’ contract.

Under the clause 1.13 ‘Nature of the relationship’ of Nakheel Contract, it clearly identifies the design consultancy services contract as a ‘Muqawala’ contract as it state “*At all times during the performance of the Services, the Consultant is an independent contractor and is not an employee or agent of the Employer*”.

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<sup>32</sup> Article 872 of UAE Civil Code Transactions

<sup>33</sup> S I Al Sarqawi, Source of consent obligation in UAE civil code transaction, contract and unilateral behavior, College of Law, Ajman University of Science and Technology (2011) 49

### **3. Design Engineer duties at Pre-Construction phase.**

Designers are in a unique position, have a key role to play and reduce the risks that arise during construction work. Designs develop from initial concepts through to a detailed design and specification; involving different teams in various stages. At each stage, all disciplines may make a major contribution to come up with the final design and identifying and eliminating the risks. Designers' decisions affect the health and safety of construction work. These decisions influence later on the design alternatives.

Designers' liabilities extend beyond the construction phase. They require considering in addition to the project safety, the methodology of the project maintenance, cleaning, refurbishing and the health and safety of the end users. For most designers, build ability considerations and ensuring that the structure can be easily maintained and repaired is part of their normal work and at the same time thinking about the safety of those who do this duty should not be.<sup>34</sup>

Failure to address these issues adequately at the design stage will usually have a tough impact in the running costs, as clients will then endure costly solutions at time of repairs and maintenance.

Designers should provide all necessary and required information at the design to ensure that the other engineers and contractors are aware of remain significant risks when they performing their duties, taking in account that the designer also have duties under other legislation.

It is important as well for the consultant to ensure that the design is:

- I. Suitable in light of the client's needs.
- II. Feasible in the light of the client resource and funding facility.

In addition to the above, the designer may wish to think more generally about the relationship he wishes to form with the client. While numerous risks arise as a consequence of the project, only a limited number will have a significant effect and should therefore influence the selection of the design and specifications as well as the

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<sup>34</sup> Duties of a Designer, Construction Design & Management Regulations, CDM2007 (2011) 1.

associated form of contract; where risks should be allocated to the party best able to manage. In other words, parties should be made accountable for their specialized contributions to the project<sup>35</sup>. For example, the risk of design failure is usually passed to the designer as he is the expert and his work's nature allocate the design control and risk mitigation under his appropriate professional insurances.<sup>36</sup> In this section we will examine the designer duties looking in to applicable civil law codes, using the FIDIC standard agreement format and a local format for each stage to address the strength or weakness of the applied conditions.

### 3.1 Obligation of the Design Engineer under the contract

- **Scope of the Service**

The services required the design engineer being invited to undertake a project design from briefing to the completion of the final design and awarding the project, how does this scope of service covered by the following perspective.

- i. **Law**

Article 881 has brief the designer scope of service as *“If the work of architect is restricted to making the plans to the exclusion of supervising the execution, he shall be liable only for defects in design”*<sup>37</sup>.

According to this article, the law has define the scope of the designer service generally as making the design only an being liable for any defect in this design.

Therefore, it is require performing the design and producing an adequate and complete design that could serve or achieve the project's purpose.<sup>38</sup>

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<sup>35</sup> S Frij, Preparation of the documents, tender works and awarding, engineering and construction Contracts Management( 2<sup>nd</sup> book, Daranshr, Cairo, 2007) 20.

<sup>36</sup> PMI, A Guide to the Project Management Body of Knowledge, 4th edition, Project Management Institute, Sylva, NC (2000)185

<sup>37</sup> UAE Civil Transactions Code.

<sup>38</sup> Article 878 of UAE Civil Transaction Code *“The contractor shall be liable for any loss or damage resulting from his act or work whether arising through his wrongful act or not”*

## ii. FIDIC Agreement

Clause 3 of Model Agreement state that *“The Consultant shall perform Services relating to the project”*.

Appendix A is usually describe the required services as a ‘Term of reference’ by the designer, though FIDIC has set a guideline to help in preparing the scope of service in general, missing some serious or required services could rise due to humane mistake which may lead to a potential dispute between the parties.

## iii. Nakheel Contract

A comprehensive basic scope of service has been included in the general condition of the contract, though ‘Appendix A’ is prepared for the additional required services.<sup>39</sup>

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<sup>39</sup> Clause 2.1 The Consultant must: (a) perform the Services in accordance with this agreement; (b) ascertain the Employer’s requirements for the Project and, for that purpose, regularly consult with the Employer’s Representative; (c) consult with the Employer’s other consultants where this is necessary or desirable for the proper performance of the Services; (d) coordinate its Design with any design being prepared by the Employer’s other consultants; and (e) comply and ensure that its personnel comply with: (i) any direction of the Employer’s Representative concerning the performance of the Services; and (ii) the Law. Clause 2.2 *“In complying with its obligations stated under clause 2.1 the Consultant confirms and agrees that: (a) it is fully experienced and properly qualified and equipped to perform the class and/or type of work constituting the Services; (b) it will not breach any applicable copyright and/or intellectual property Laws and/or any Intellectual Property Rights of a third party in performing the Services; (c) it will comply with all applicable Laws in performing the Services and must compensate the Employer for any pecuniary or other Costs of whatever nature suffered by the Employer for any failure to so comply with any applicable Law; and (d) each of its employees responsible for performing the Services has and shall have a legal employment status compliant with all applicable Laws”*. Clause 2.3 *“The Consultant agrees that the Services shall include all works and services which, although not expressly mentioned in the agreement, are necessary for the completion, and safe and proper operation, of the Services”*. Clause 2.4 *“Nothing in this agreement must be construed to authorise the Consultant to effect any unilateral change in the performance of Services, the Fee and/or this agreement without the Employer’s Representative’s prior written approval”*. Clause 2.6 *“The Consultant must coordinate and interface for the purposes of performing the Services with the Employer’s Representative and any other consultants or professionals employed by the Employer or otherwise engaged in respect of the Project”*. Clause 2.7 *“To the extent that this is applicable to the nature of the Services, the Consultant must afford the Employer and other contractors / consultants undertaking work on behalf of the Employer, reasonable unimpeded access and opportunity for the performance of their work and contracts and must co-operate fully with other contractors / consultants associated with the Services. The Consultant must make allowance for such co-operation and access in the Documentation Program”*. Clause 2.8 *“If at any time the Consultant identifies any potential inconsistency or interface problem between its Services and other contractors’ / consultants’ proposed services, it must immediately advise the Employer’s Representative who will determine the inconsistency or interface*

By review and study the above articles and clauses, it seems that Nakheel general condition was trying to cover all the necessary aspects of the service to build a solid clause base to avoid any uncertainty in the agreement, though it seems to be too strict and harsh to the consultant to comply with all this aspects and may lead to increase the consultancy fees to cover the required service and the indemnity.

- **Duty of Care in performing the contractual obligations.**

Duty of care is a legal obligation which is requiring that professionals adhere to a standard of reasonable care and diligence while performing any acts that could foreseeably harm others. For instance, a designer involved in erecting a structure may be reasonably responsible to clients the safety and stability of the structure for ten years as per the law as well as any consequential cause may affect the structure due to the absence of 'duty of care' *"If the damage done is a consequential of the act then it must be proven that there was (1) an element of "wrongfulness" or (2) at least a "deliberate element" to the act which led to the damage<sup>40</sup>. Except, in the case where the act caused damage both directly and consequentially then the resulting harm "must unconditionally be made good<sup>41</sup>".* Duties are limited to those whom are in privity in one way or another. Compensation of the damages shall be assessed on the basis of the amount of harm suffered by the victim and any direct loss of profit. 'Direct' in this context means that the damage occurred as *a natural result* of the harmful act<sup>42</sup> while the compensation shall be assessed in the form of cash money only. However, this compensation does not cover loss of profits or moral damages.

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*problem and issue to the Consultant an appropriate instruction to resolve the inconsistency or interface problem. The Consultant must comply with any instruction given to it by the Employer's Representative in accordance with this clause 2.8 and the Consultant agrees that, without prejudice to the Employer's right to exercise its absolute discretion to direct a Variation, the Consultant will not be entitled to any Variation to the Services or Compensation for compliance with any such instruction".*

<sup>40</sup> Article 283 (c) of UAE Civil Transaction Codes

<sup>41</sup> Article 284 of UAE Civil Transaction Codes

<sup>42</sup> Article 292 of UAE Civil Transaction Codes

## **I. Law**

A person shall be held liable for (1) an unlawful exercise of his right<sup>43</sup> or (2) for any harm to another, even though not a person of discretion<sup>44</sup>.

## **II. FIDIC Agreement**

The Consultant shall exercise reasonable skill, care and diligence in the performance of his obligation under the Agreement.

## **III. Nakheel Contract**

2.11 The Employer is relying upon the professional expertise and experience of the Consultant in the performance of the Services. The Consultant must perform the Services strictly in accordance with the professional standards of reasonable skill, care and diligence to be expected of experienced and competent international consultants specialising in providing similar services for projects of a similar scope, quality, size, magnitude and complexity to the Project.

2.12 The Consultant must ensure that any sub-consultant appointed by it performs that part of the Services for which it is responsible with the professional skill, care and diligence to be expected of experienced and competent international consultants specialising in providing similar services for projects of a similar scope, quality, size, magnitude and complexity to the Project.

2.13 The Consultant must ensure that the Design:

(a) complies with:

(i) the Project Brief;

(ii) the Development Budget;

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<sup>43</sup> Article 106 (1) of UAE Civil Transaction Codes

<sup>44</sup> Article 282 of UAE Civil Transaction Codes

- (iii) the Law; and
- (iv) internationally recognised professional standards applicable to projects such as the Project;
- (b) does not infringe any Intellectual Property Rights;
- (c) complies with the other requirements of this agreement; and
- (d) is suitable for its intended purpose in accordance with the Project Brief as amended from time to time by the Employer.

### **3.2 Design Engineer involvement and duties at the Pre-Construction stages**

The pre-construction phase is going through different stages, which start at the negotiation prior the agreement, through the design, and till the project awarding, while the design guarantee of the works is extend for a ten years from the project completion date according to Article 880 *“If the subject matter of the contract is the construction of buildings or other fixed installations, the plans for which are made by an architect, to be carried out by the contractor under his supervision, they shall be both jointly liable for a period of ten years..”*<sup>45</sup>. At each of these stages the design engineer has a firm roles and duty to perform in accordance with the contract and law.

#### **3.2.1 Prior Agreement**

A client appoints a design engineer to produce a well-proportioned structure in terms of appearance, planning, construction, primary maintenance cost. . In most cases the client is an efficient business organization and expects a competently run of contract and amicable settlement of final account. In order to achieve this, the designer has to involve competitive sub-contractors, quantity surveyor, engineers and specialists required for specific type of works.

The duty of ‘informing’ or ‘given an advice’ arises at the first stage which starts by the discussion and negotiation process till an agreement is reached and contract is signed.

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<sup>45</sup> UAE Civil Code Transactions.

### **3.2.1.1 Enlighten**

Enlighten intend to guild and clarify to the client; the contracts aspects that he is not aware of, where for that purpose, clients are seeking the design engineer's assistance, as he is specialist, professional and qualified for such works. Hence, it is important to define the 'enlighten' characteristics, and its legal base.

Enlighten is may intend to inform, advise and warn:

#### **i. Inform**

This duty includes a neutral explanation of the surrounding circumstances of the proposed subject matter and any certain context that may leads to a full understanding and accordingly a mutual consent.

#### **ii. Advice**

Providing a professional, technical and practical opinion and recommendation to the client to do a certain act or to avoid doing it is a main duty of the design engineer as a duty of care.

#### **iii. Warn**

The design engineer is obliged to draw the client attention and alert for any potential risks may occur as a result of any specific act he could undertake and may affect the purpose of achievement.

From the above enlighten can be defined as a duty of the design engineer as to disclose and explain to the client if necessary, the risks and obstacles that may affect or result from the work based on the designer knowledge and experience. Theses duties put the designer in a legal position that obliged him to disclose such necessary information to achieve the best results of the contract between the two parties.<sup>46</sup>

From the previous definition, we can conclude that the characteristics of the enlighten obligation in the engineering design consultancy contract are:

#### **i. It is a genuine obligation**

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<sup>46</sup> S. Montaser, Obligation of Enlighten in the Civil Contracts (Dar Anhda, Cairo) 6

That mean it is a compulsory obligation in the design engineer contract, whereby, this duty based on a good faith and trust between the contracting parties due to the disparity in the technical knowledge, qualification and experience.

- ii. incorporate a warning of any harmful aspects may surround the work

Design engineer role is not limited to just give information as impartial, but also must take a positive attitude in facing the client wishes that may produce serious consequences on the project objectives.

### **Legal Base of ‘Enlighten’ duty**

Under the general rules of contract; each contracting party must investigate the conditions of the contract on the grounds that he is the most keen to preserve his rights as well as his interests.

Enlighten the client is to provide the adequate and necessary information regarding the contract’s conditions and its aspects as an ethical obligation, which became later as a legal duty.

Although there are no direct and explicit reference to this duty in any independent legal provision, nevertheless, it is possible to draw this legal basis of enlighten from different legal provisions among numerous of laws, which its main objective is to establish sort of balance on the conflicting interests between the contracting parties on one hand, and the difference in terms of expertise and information from the other hand.<sup>47</sup>

Referring to the Article 490 (1) “*The property sold must be known to the purchaser sufficiently to avoid gross uncertainty*”<sup>48</sup>, this is in parallel to *Jordanian civil law article 466 (1) “It shall be a condition that the sold property shall be known to the purchaser in a manner which negates serious ignorance”* while Article 419 (1) state “*The purchaser must have an adequate*

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<sup>47</sup> M I Dsooqi, Legal aspects in negotiation management and contracting (Saudi Institute of Public Administration, Riyadh, 1995) 76.

<sup>48</sup> UAE Civil Code Transactions

*conscious of the sold property; it is considered adequate conscious if the contract includes a statement of Sales and statement of its basic descriptions that can be recognized by*<sup>49</sup>.

Law requires the seller to identify the sold property to contradict the unawareness of the purchaser with the necessary knowledge. There is no doubt that the required knowledge here is the primary knowledge prior to the contract or at least at the moment of the contracting to avoid any gross uncertainty may arise.

Although this provision is particular for sales contract, however, it can be measured on other contracts as well due to the similarity of the fundamental, as this provision desire to achieve a satisfaction, conscious, independent and insightful for the party that does not have an adequate knowledge in the field of contract that he sought by.

Article 186 of UAE Civil Code Transactions “*Deliberate silence concerning fact or set of circumstances shall be deemed to be a misrepresentation if it is proved that the person misled thereby would not have made the contract had he been aware of that fact or set of circumstances*” and which is the same of Jordan Civil Law article 144<sup>50</sup>, whereby article 125(2) of Egypt Civil Law used the word fraud instead of misrepresentation.

These provisions showed that if the design engineer took a negative attitude by being silent or hide any important information from the other party, and this information is important for deciding either to go ahead or avoid the contracting; may consider as a breach of a major duty of the design consultancy contract, which is the ‘enlighten’.

Generally silence is not fraud, except in particular situations when disclosure is necessary, in these cases; disclose become obligatory either by a legal provision or by agreement, though the general rule that deceive is not

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<sup>49</sup> Egypt Civil Law

<sup>50</sup> “Silence with intent in respect of a fact or circumstance shall be considered as deceit if it is proved that the deceived person would not have entered the contract if he had known of that fact or circumstance”.

permissible as it may affect the other contracting party consent if he is well aware of the facts.<sup>51</sup>

Article 246 of UAE civil law state that: “(1) *the contract must be performed in accordance with its contents, and in a manner consistent with the requirements of good faith.* (2) *The contract shall not be restricted to an obligation upon the contracting party to do that which is (expressly) contained in it, but shall also embrace that which is appurtenant to it by virtue of the law, custom, and the nature of the transaction*”. And this article is similar to Article 202 of Jordan civil law and article 148 of Egypt civil law.

From the above articles, the contracting parties must exercise their obligations in a good faith and in accordance with the contract’s contents and related substances, as enlighten is one of the major required duty of the contract due to the different valence between the parties, as this duty may be estimated in accordance with the law, custom or justice depending on the transaction nature.

Accordingly, we find duty of enlighten is based on the principle of good faith and Secretariat in transactions in general, where there is no particular legal provision, but it can be found within different legal provisions. Therefore, this duty must be provided in any contract that has an equilibrium difference between the contracting parties in a specialized technical knowledge.

### **3.2.1.2 Retrospective agreement effect**

Referring to FIDIC model agreement, there is no clause concerned any performance prior the agreement date, while Nakheel contract has a special clause with regard the provided services prior to the agreement date.

Clause 1.8 state that “*Any work. Services or supplies performed or provided prior to the date of this agreement by the Consultant for the Employer in connection with the subject matter of this agreement shall be treated as having been performed under and shall be subject to the provision of this agreement and any payments made by the Employer to the Consultant in respect thereof shall be treated as payments on account*”

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<sup>51</sup> A Sanhory, Al wasit to explain civil law (Vol.1,sources of obligation, 3<sup>rd</sup> Ed, 1981) 427

*of the fee*”. Thereby, the consultant rights is preserved by this clause as his performance prior the agreement date shall be consider as part of this agreement and the designer is entitled to be paid for any provided services.

This clause, result in a well-organized framework that include the necessary supplementary information for the project success.

### **3.2.2 Feasibility Study**

The designer studying the feasibility of the project from two different perspectives:

- i. Technical Feasibility: the possibility of setting up the project based on site conditions, climate, soil condition...etc.
- ii. Financial Feasibility: project’s cost, finance, time frame, financial methodology, raw materials...etc.<sup>52</sup>

The general conditions of Nakheel contract has deliberate the designer project’s study and his recommendation prior signing the agreement as per clause 2.9 for *“It is the responsibility of the Consultant to obtain all pertinent information, documents and other particulars necessary in order to perform the Services. The Consultant must examine all information, documents and other particulars relating to the Project which are made available by the Employer to the Consultant and satisfy itself of the sufficiency of all that information, documents and other particulars. Accordingly, the Employer does not warrant, guarantee or make any representation about the accuracy or adequacy of any information, data or documents made available to the Consultant as to the existing conditions at the Site or relating to the Project.”*

The designer has to obtain all the necessary and relevant information, documents and to examine its validity, accuracy and the possibility of executing the subject project on the particular existing site conditions and environment. Therefore, designer is liable for the project success.

And clause 2.10 *“If the Consultant considers at any time that the information, documents and any other particulars relating to the Project which are made available*

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<sup>52</sup> S Frij, Preparation of the documents, tender works and awarding, engineering and construction Contracts Management ( 2<sup>nd</sup> book, Daranshr, Cairo, 2007) 13

*to it by the Employer are not sufficient to enable the Consultant to provide the Services in accordance with this agreement, then the Consultant must immediately advise the Employer in writing specifying the further information, documents or other particulars it requires.”* Insisting the designer to raise any critical concern may affect the design or project success to the client at the initial stage prior any commitment.

Upon signing the agreement the consultant must provide the documentation program of the proposed services within 7 days of the agreement date as per clause 4.4 *“The Consultant must, within 7 days of the date of this agreement, submit a Documentation Program for the performance of the Services in a network diagram format, which is consistent with the Development Program and identifies all significant dates and review periods, for the Employer’s Representative’s approval”*<sup>53</sup>. This validate the concept of the designer liability of the project feasibility study prior signing any agreement, as upon signing he has to submit the performance program to the client for approval and this document shall be updated instantly and regularly as per clause 4.5 *“The Consultant must update the Documentation Program so that submitting the Design Documents complies with the Development Program: (a) monthly; and (b) as such times as may be stipulated in a written request by the Employer’s Representative, to show: (c) progress achieved with the production and delivery of the Design Documents and, where appropriate, changes to the sequence and duration of any activity; and (d) any corresponding changes to the Consultant’s resources to be utilised, and promptly provide copies of each update for the Employer’s Representative’s approval”*.

### **3.2.3 Preliminary Design**

Prepare the initial plan of the proposed site in collaboration with different’ s consultant's business divisions, Authorities and stakeholders, in addition to that carry out a preliminary study for construction materials, estimate the required quantities of materials and the initial cost.

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<sup>53</sup> Nakheel General Conditions Contract

- **Preparation of Design Documents**

Nakheel Contract conditions have given a decent attention to the design documents' preparation as stated in clause 2.14 "*The Consultant must:*

*(a) verify that the Design Documents are in accordance with the Document Preparation Guidelines and the other requirements of this agreement; and*

*(b) verify that the Design Documents have been prepared by people with appropriate professional qualifications".* Whereby, the designer is committing that the preliminary design is carried out by a qualified and professional individual, to mitigate the risk of any miss presentation of the project.

Moreover it is insisting to establish a quality assurance procedure for the design documents review process as per clause 2.15 "*The Consultant must:*

*(a) establish quality assurance procedures satisfactory to the Employer's Representative; and*

*(b) thoroughly review all Design Documents in accordance with those procedures".*

### **3.2.4 Detailed Design**

Upon the initial agreement of the preliminary drawings, the design consulting engineer shall prepare the project details, standards, interface, facilities and specification; taken in consideration the local authorities rule, regulations and the necessary approvals. These details are designed by specialties such as urban planner, architect, infrastructural engineer, structural engineer, mechanical engineer, electrical engineer, environment Engineer...etc, as appropriate to provide a comprehensive view of the project<sup>54</sup>.

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<sup>54</sup> White Paper, Engineering Consultancy and innovation, Syntec-Ingenierie (Professional Engineering Consultancy Federation, France,2008) 17

### 3.2.4.1 Designs Defects

The design work, in fact, is the essence of the engineer profession; this task is manifest by completing the plans of the building and preparing the contractual documents, that will help to accomplish the construction works. Consulting engineer provide a copy of the contractual documents to the client upon obtaining his approval, while other copies submitted to the management for the building permit process.

#### i. Aspects of Design's defects

The design defects may appear in several design aspects, including, for example but not limited to:

- **Omission the original purpose of the building:**

When the designer set a design of building or structure that diverge from the client requirements or has different purpose than what agreed with the client. For example the client may request the engineer to design a building for a low income residence, but the designer provide a luxury building, or an offices building put the design does not accommodate the necessary requirements for such building purpose.

- **Omission building beauty aspects:**

Sometimes the building theme and decoration are very critical for the project success to serve its initial purpose of the constructions. Furthermore it could be one of the serious factor which could make the building not valid any to achieve its objectives, such as design of five stars hotels, if the designer design a building different than what suppose to be or vary than the client style or taste, Thus may make the construction is not compelling to achieve the desired goal of the construction, therefore the designer may become liable in accordance with the article 878 *“The contractor shall be liable for any loss or damage resulting from his act or work whether arising from his wrongful act*

*or default or not*”<sup>55</sup> for the defects in the design that make the structure inadequate to achieve the intended purpose of the construction.

- **Wasting comfort and safety factors:**

Comfort and safety are very important factors too for the success of any project, and ignore any of them may lead to a big failure for the constructed building, thus may not achieve the required objective of the building; For example, to design one elevator for a residential tower building, which needs for more than one elevator to provide a comfort for the residences and their necessities, or select type of elevators that does not have the required safety standard to ensure the safety of the users.

Another Example, is designing the exterior walls that are not suitable for the local weather and may not resist the temperature or humidity, as well as the ceilings and floors. In addition to that, not providing adequate fire exists in the design or the required and necessary fire system may affect the project purpose and delay its delivery due to the uncompleted design.

From this, it is obvious that there are many type of defects that may affect the designs, which requires the engineer to be very cautious in performing his duty with knowledge and art, taking into account the applicable law, rules and regulation though his wage is minor, the engineer will remain liable under the civil and criminal laws, due to the seriousness of the consequences of such failure.<sup>56</sup>

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<sup>55</sup> UAE Civil Code Transactions

<sup>56</sup> N J White, Construction Law for Managers, Architects, and Engineers (Thomson Delmar Learning, 2008, USA) 125-132

## ii. **Designs in Contrary of Technical Rules and Standard**

Designer is fully responsible for all design related issues such as drawings plan, its amendments and specifications; by taking in account the technical rules, circulars guidelines, regulations and the applicable standards at the time of the design preparation, in addition to the construction works regulations.

Non compliance with the technical rules for the design may include:

- **Failure in conducting the soil investigation report or neglect its result**

The design engineer must conduct a soil investigation for the proposed project location through specialists in soil engineering to indicate the geological nature and its extended tolerance for the foundations and accordingly prepare the project structural calculation and the appropriate structure system. Not carrying such investigation or ignoring its result will have a direct impact on the design and building stability, therefore the designer may be liable for the negligence.

- **Conflict between the architectural design and the structural system.**

The building structural system must be in harmony with the architectural design visualization. This is the basis of design, where structural system is the structure design of the building structural elements such as columns and beams to carry the live and dead loads of the building.

- **Defective foundations' design:**

The foundation design must be in term of type, dimensions and quantity of the reinforcement steel, moreover, and this design shall be carried out in consideration of the proposed structural systems and soil investigation result. Thus, failure of the foundations is a fundamental erroneous of the inappropriate design that could affect the whole building structure design.

- **Defective design specifications:**

Technical specifications is a detailed statement set by the engineer to describe the different types of materials needed for the implementation of designs developed by him and the nature of each type, attributes and characteristics that discriminate it from other similar materials and the method used.

In general, liability of defective specification or plans always rested with the designer, if he deviates from the accepted industry standard, by specifying unapproved or tested materials, or material specification is not completed and therefore insufficient that may lead to apply inadequate material.

Running concurrently with the design considerations in respect of general planning, there should be an exhaustive investigation of alternative materials and methods of construction suited to the type of building. Careful analysis of all data, including obtaining and checking samples should be made with special reference to the building regulations control, standards and codes of practice, available information from official concerned laboratories and behaviour of materials of previous experience.<sup>57</sup>

The mechanical and electrical materials as well as public service work involved in a fully serviced building represent a very high proportion of the overall cost and content and have a fundamental effect on the form of the building, that its items may affect the structural systems, hence it required a close consideration of the specifications for ensuring comprehensive environmental performance.

Thereof in such inaccuracy of specifications, the designer expose himself to be accountable in accordance to the provision of this disclaimer, if those materials fail and lead to a full or part collapse in the property and affect its durability and safety or if the structure become inadequate to achieve the intended purpose of the construction.

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<sup>57</sup> R Green, *The Architect's Guide to running a job* (RIBA AADip FCSD, 6<sup>th</sup> edn, Great Britain by MPG Books Ltd, 2001) 71

**iii. Designs in non compliance with the local building control, rules and regulation**

This may occurs when the designs do not comply with the applicable rules and regulations, as well as violate the building regulations control, such as bypass or exceed the permissible height, area, building projections, the project architectural design and theme in conflict with the approved design criteria rules “DCR” of that particular area, district or community or being in contrary of terms the health, safety and environment which demand by rules and regulations. Municipalities in UAE are the concern local authorities to set these rules and regulation in cooperation with other government authorities such as Civil Defence, Electrical & Water Departments, Civil Aviation, and Telecom Authority...etc.<sup>58</sup>

**3.2.5 Final Design and Preparation of Tender Documents**

After completion of the design’s specifications and approved by the stakeholders; the design consulting engineer arrange for the final design, material specifications, bills of quantities and tender documents excluding the construction method of statement and equipment’s installation for the project.<sup>59</sup>

▪ **Error, Omission by Designer in Nakheel Contract**

Clause 2.18 “*Without prejudice to any other remedies under this agreement or at Law, where errors or omissions are found in the Design Documents or any other documents prepared by the Consultant, the Consultant must promptly remedy the errors or omissions at its own cost and re-issue the amended drawings, specifications or other documents*”. In the errors or omissions in the final design or related documents affecting the project prior the project

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<sup>58</sup> S Frij, Preparation of the documents, tender works and awarding, engineering and construction Contracts Management (2<sup>nd</sup> book, Daranshr, Cairo, 2007) 202

<sup>59</sup> S Frij, Preparation of the documents, tender works and awarding, engineering and construction Contracts Management (2<sup>nd</sup> book, Daranshr, Cairo, 2007) 13-14

performance, the designer will be liable to amend the defective documents and drawing on his own cost, without any additional charges to the client.

Clause 2.19 *“The Employer and/or Employer’s Representative will have the right, during the performance of the Services and for a period of 12 months following completion of the Services, to examine the Services and to reject any item that is not performed in accordance with this agreement. No such examination or rejection will relieve the Consultant from any of its undertakings, confirmations, warranties, obligations or liabilities under or in connection with this agreement”*. The designer’s warranty on the design shall be extended during the contract performance and the defect liability period, and he will not be reliving from any liabilities or obligations under his contract.

Clause 2.20 *“If, in the opinion of the Employer and/or Employer’s Representative, the Services or any parts of the Services have not been performed in accordance with this agreement, the Employer’s Representative must notify the Consultant in writing of the nature of the defect in the Services. Upon receipt of such notification, the Consultant must immediately take all actions necessary to correct the defect(s) and will be liable for all Costs associated with the remedying of such defect(s)”*. The designer must perform the services in accordance to the agreement and he shall be liable for any defect raise during the construction and related to the design and he shall be liable for any associated cost may rise in resolving the defect on the design or documents.

Clause 2.21 *“In the event that the Consultant does not perform any remedial services under clause 2.20, the Employer will be entitled to perform or have performed the remedial services and to recover from the Consultant all Costs of such remedial services”*. The designer is liable under this contract to remedy the defect on the design; otherwise the client may perform the remedial action and recover the implicated cost from the designer in order not to delay the site performance upon issuing a written notice to the designer.

Law has covers the design warranty for ten years from the day of delivering the project; though Nakheel condition in this regards is more specific in listing types of consequences might be raised with regard the design sustainability as per Clause 2.22 *“Without prejudice to the undertakings, confirmations, warranties, obligations or liabilities of the Consultant under this agreement or at Law, the Consultant is liable both during the continuance of this agreement and thereafter for a period of ten years (or such longer period as may be specified by Law) from the completion of the Services or the date of termination of this agreement in accordance with its applicable terms for the consequence of any wilful misconduct, negligence, error, omission, or lack of skill care and diligence by the Consultant, its personnel or sub-consultants in the performance of the Services”*.

From the above we can relies that Nakheel has work very hard to include all the concerns that has the possibility to accrue during and thereafter the design stage, and not relying on the applicable rules, for the benefit of the client and project. In other hand, such tide conditions may raise the professional indemnity insurance of the designer and accordingly the design cost.

### **3.2.6 Invitation to Tender**

Are advertised bids by the media (newspapers or magazines) before In advance of bidding 30 or 60 days, and asks all interested contractors Project submit bids by dragging the project documents and study and Show this by sealed envelopes and requests delivered in time and place Specific, and include a model contract documents, and architectural and construction drawings BOQ and specifications of the work required.

### **3.2.7 Bidding**

Interested contractors provide their offers and project’s documentations including the project study declaration, complete bill of quantity, cost of the additional required items in case of the omission and overall cost in sealed and stamped envelopes.

### **3.2.8 Tender Opening**

Opening the contractor bids envelopes at the declaration date; in the presence of the client, design consulting engineer and the bidding contractors. Bid's values and initial tender's compliance is declare and recorded.

### **3.2.9 Bid Evaluation**

The designer involvement on the bid evaluation stage is as follows:

- i.** Design consulting engineer receive a copy of the tender bids for study and evaluation.
- ii.** Design consulting engineer keeps the evaluation process private and confidential.
- iii.** Committee form and usually consist of Design consulting engineer's key members and client representative.
- iv.** The evaluation committee members must have extensive technical experience, with Familiarity of contract's terms and conditions as well as the contractor's capacity and experience in similar projects.
- v.** The evaluation committee examines the equipments and capabilities of the contractor, for the successful implementation of the project
- vi.** Evaluation committee study the bids in relation to the technical and financial requirements of the project.
- vii.** Final assessment presented to the stakeholders with the design consulting engineer's recommendations.

During this period the consultant is completely liable for any advice or recommendation he provide it to the client, as per the Care, custody and control clause 7.6 of Nakheel general condition *“The Consultant: (a) is liable for the care, custody and control of the Designs prepared by or on behalf of the Consultant or entrusted to it by the Employer until handed over or returned by the Consultant to the Employer; and (b) acknowledges that it remains fully liable to the Employer for any advice given in meetings with the Employer, its employees,*

*agents or contractors, even if any other party has adopted, accepted or acted on that advice*". Therefore, the designer under this contract will not be able to shirk from the liability of providing any recommendation or advice if it is proven at any stage that is not an appropriate.

### **3.2.10 Negotiation Stage (after the tender evaluation)**

Meetings conducted between the client and the anticipant winning contractor in presence of the design consulting engineer for further negotiation on price, conditions and further clarification prior signing off the final contract.

### **3.2.11 Awarding**

Awarding letter drafted by the design consulting engineer for client review and signature upon ensuring that all necessary and required documents obtained from the winning contractor.

At this stage the designer is closing the pre-construction phase by completing the project documents prior handing over all documents related to the project to the client and admit the copyright owner of these documents; according to the white book agreement the designer is preserve the copyright of the project's design and documents prepared by him as per clause 39 "*The Consultant retains copyright of all documents prepared by him. The Client shall be entitled to use them or copy them only for the Works and the purpose for which they are intended, and need not obtain the Consultant's permission to copy for such use*". And he is not entitled to use them except for their purpose only. However some designer may miss use this clause by sharing the documents with third party for different purpose without the client knowledge.

While Nakheel took this misappropriation in consideration due to their critical competition position in the market and preserve all the copyright as a client for every single document prepared or provided under this agreement regardless their importance or tenacity according to Clause 6.1 of Intellectual property, ownership of, and copyright in, Design Documents "*All drawings, tracings,*

*designs, specifications, calculations, design notes, and all other data and information furnished to the Consultant by the Employer will remain the property of the Employer and must be returned to the Employer prior to the completion of the Services. In addition, the Consultant assigns to the Employer absolutely all of the Consultant's rights, title and interest, free from any liens or attachments, in the Design Documents and any other documents that the Consultant creates under this agreement, on their creation", in addition to that, clause 6.2 "The Consultant must procure the assignment of all rights, title and interest in any documents created by sub-consultants or other contributing parties in performance of the Consultant's obligations under this agreement, from those persons to the Employer on their creation" the client preserve the copyright of the sub-consultant works under the umbrella of the main designer for the same project. Clause 6.3 "The Consultant must, if required by the Employer, do all further things necessary to give effect to the assignments in clauses 6.1 and 6.2 including signing any documents or forms requested by the Employer as required effecting the assignment with the competent registration authorities" and clause 6.4 "The Consultant must not use any material in which there are Intellectual Property Rights incapable of being assigned to the Employer, without the Employer's Representative's prior written approval. If the Employer's Representative so approves, the Consultant must ensure that the Employer is provided with an unrestricted, non-exclusive, irrevocable and transferable, royalty-free licence to use the subject material of those Intellectual Property Rights on terms acceptable to the Employer. Such licences shall carry the right of the Employer to grant sub-licences" insist that the designer is not entitled to use any of the project's documents without a prior written approval from the client; moreover the designer must grant the client with an unconditional Intellectual Property Rights licences to own the design document rights in accordance with clause 6.5 "The Consultant undertakes that: (a) subject to any licence of Intellectual Property Rights under clause 6.4, after the assignments in clauses 6.1 and 6.2, the Employer will own absolutely all of the Intellectual Property Rights in the Design Documents and all other documents that the Consultant is required to*

*provide to the Employer or the Employer's Representative under this agreement".*

From the above we can observe that as the law doesn't prevent the designer from afford the risk for the consequences of any the unforeseen incident may rise during the design phase, in order to save the client with at least the minimum required security, the client may transfer all the risk to the designer and preserve his reasonable rights by including the appropriate provision under the signed agreement and accordingly the designer shall be liable for all the occur consequences under the agreement.

## 4. Conclusion

This dissertation examined the design engineer duties, where it has been divided into four chapters, the first chapter is the introduction; include the aims and objectives of the dissertation, structure and the method. The second chapter include three main researches; first is the designer definition in the law, the second is the contract attributes and the last research is the legal nature of the designer contract.

Third chapter examined the design engineer duties at pre-construction phase; which include the obligation of the design engineer throughout the contract, designer involvement and their duties during the pre-construction eleven stages which start by the pre-agreement stage and end by awarding the contract. Where we have review and examine Nakheel general conditions for the design services in associating of the FIDIC white book conditions and the applicable codes of UAE civil transactions.

The fourth and last chapter is the findings and the recommendations.

From the dissertation study we can list our findings and results as follow:

- i. The consulting engineer is an individual who is professional and technical, whom distinguish from the client by his practical experience and knowledge, and therefore others seeking his engineering consultancy services for engineering's solution and construction purpose.
- ii. Design's engineer has a duty of enlighten the client as well as clarify the potential risks that may rise at any stage of the project prior the contracting, due to his professional technical and shall be liable for any advices or recommendations provided to the client and adopted.
- iii. The design's engineer is liable for the design warranty for ten years from the project delivery date or installations.
- iv. Design's engineer is not entitle to be exempted from the defective design liability, that led to a total or partial collapse on the building or designs that

fail to accommodate the essential requirements of the building purpose and client needs.

- v. Any agreement to exempt the designer from the design warranty or limiting the duration period to less than ten years from the delivery date is void according to the law provisions and he remain liable.
- vi. However, the designer may be exempted from the design warranty if he can provide the evidences of others responsibility for the design defect such as force majeure, fault of others or to prove that the client has not fully complied with the provided design consultancy recommendations.
- vii. The law doesn't prevent the designer from afford the risk for the consequences of the unforeseen incident or force majeure if it is agreed in the contract, because the law emphasise to save the injured with the minimum security, therefore, if this provision is under the agreement it is valid and the designer shall be liable for all the occur consequences under the said circumstances in the Egyptian law.
- viii. A substantive disagreement found between the Emarati and Egyptian civil law in several aspects such as:
  - Period of limitations for a design warranty's claim in UAE law is one year from the date of collapse's incident or discovered defect, while in Egyptian law over three years from the date of collapse's incident or discovered defect, which protect the rights of the end-users and clients and give them the chance to check if the defect is related to design defect or not within a reasonable period, particularly when it related to a high rise building with multiple clients.
  - In UAE civil law, Decimal liability does not cover loss of profits; it is only to compensate the damages of the plaintiff, while the Egyptian law compensate the plaintiff for the damages and the loss of profits.
  - In UAE civil law, compensation of moral damages is not comprised for the consulting engineer's fault contrary to the situation in Egyptian civil law.

- The UAE law doesn't provide any agreement to afford the designer the risk for any consequences rise due to unforeseen incident or force majeure even if it is agreed in the contract contrary to the Egyptian law.

#### **4.1 Recommendations**

- A particular legislative regulation and rules for the engineering consultancy services needs to be developed, as the existing legal provision does not cover the private aspects of the designer duty.
- UAE Engineers Code of Conduct and charter ethics needs to be establish by UAE Society of Engineers and related Authorities to play more effective role in governing the individual's engineers whom working in this profession.
- Guidelines of designer's professional duties to be established to educate the designer with their duties and liabilities, which is also recommended to be taught at the university for the engineering students.
- It is strongly recommended that UAE legislator to reconsider the valuation of the compensation of the lost profits similar to the Egyptian legislation. As most of the investors in the construction sector are commercial companies that aim to achieve a profit, and by limit the compensation to the actual damages escalate their losses in addition to the prolonged litigation processes of the civil cases which freeze their cash for a quite long time.
- Building on the above, UAE legislator must also consider the literary damage's compensation for the real state companies; since the commercial reputation of these companies extremely effected in the market due to their properties failure as an ordinary cause of the design failure.
- We recommend as well, to give this profession the required attention, re-organize, arrange and educate the consulting engineers, particularly the legal aspect, through the concerned authorities and societies by conducting training

courses, workshops and seminars for the engineer duty in general and designer duty as a specific in order to ease their works in line with the current available legal provisions.

At the end, I hope that I have been succeeded in the selection of my dissertation topic, despite the scarcity of specialist legal references in the same subject, and I hope this dissertation will be a basis for other further related studies that concerned to regulate the design Engineer's duty and responsibility in the view of the current legal provisions and recommend to establish an efficient particular regulations for this industry.

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