



جامعة الموصل
كلية الهندسة
قسم الهندسة المعمارية

محاكاة الطبيعة الحية في العمارة دراسة تحليلية لعلاقة المورفوجينيسس بالتغير في الأبنية

رسالة تقدمت بها
مفاز طارق يوسف العباسي

إلى

مجلس كلية الهندسة في جامعة الموصل كجزء من متطلبات نيل شهادة
الماجستير علوم في الهندسة المعمارية

بإشراف

الدكتور عمر حازم خروفة

الفرع		القسم	رقم الاستمارة
		الكلية	8
		قسم العمارة	الجامعة
		تاريخ تسجيل الرسالة	الموصل
الجهة المستفيدة	طبيعة البحث	2012/12/12	عنوان الرسالة
للتطبيق فقط	أكاديمي		محاكاة الطبيعة الحية في العمارة, دراسة تحليلية لعلاقة المورفوجينيسس بالتغير في الابنية
قناة القبول	تاريخ القبول	الجنس	أسم الطالب
قناة النفقة الخاصة	2011/10/16	انثى	مفاز طارق يوسف جميل
جهة الانتساب		الدرجة العلمية	أسم المشرف
جامعة الموصل / كلية الهندسة/قسم العمارة	الجنس	مدرس	د. عمر حازم خروفة
	العمر	الجهة المانحة للشهادة : جامعة بغداد/ كلية الهندسة/ قسم العمارة	
	46	تاريخ الحصول على الشهادة: 2006/8/7	
	ذكر	تاريخ آخر ترقية علمية: 2006/10/25	
الاختصاص الدقيق	الاختصاص العام	الشهادة	تاريخ صدور الأمر الجامعي للطالب
نظرية عمارة	هندسة عمارة	ماجستير	
الكلمات المفتاحية : البايوميمتك, المورفوجينيسس, التغير في الابنية			

Abstract

Biomimetics in Architecture

Analytical Study for Relationship Between Morphogenesis and Change in Buildings

Recently, and under the continuity of scientific and technical progress, the importance of the living nature imitation (Biomimetic) was arise in number of engineering and design fields as a practice of ideas and concepts taken from living nature applied in technology, design and computer fields, where this subject adopts a role in which the nature forms the main remark and it is also a practical method which can draw the overlapping similarities between Biology and other specializations through studying the living creatures and studying the most important related biological principles and processes so as to make solutions and making concepts and functioning them in solving important design problems of human, what is making this Biomimetic distinguished from another type is that it is considered as a conception inspiration intended to be deal deeply with Biology rather than limited to visual inspiration and imitating formal parts and direct copy of living nature heading to the creative practice of the biological concepts in human designs. Recently, this direction takes a great importance in architecture and it is distinguished from other traditional directions in imitating living nature due to the need of the functional revolution and making change in the built environment rather than limited to the formal imitating only, and also directing design towards being harmony with the environment as well as it is being a source of the new and creative inspiration and creation, according to this, the current subject (Biomimetics in Architecture) was the general problem of the research and through discussing the related issues of this subject in former studies and explaining the most important main biological concepts which can be applied and functioned in architecture, the research tackles the most prominent of it and it was (Morphogenesis) for being

the most important concepts and indivisible of Biomimetic and for being an important design strategy based on adaption, so it was selected as a special problem of the research (First Chapter), and through reviewing former architectural issues which dealt with Morphogenesis, the importance of relationship with change in buildings through their cycle life was arise for their effect in concentrating on changes in structure and its effect on the functional and performance part more than limited to concentrate on related form transformation, from this point, the research problem was determined with (unclear knowledge of the main parts related to the Morphogenesis and its relationship with change in buildings).

Also, the research aim was (a try to determine and describe main parts related to Morphogenesis in buildings) (Chapter Two), and to achieve this aim, the research depends on a method that defines the different parts of the Morphogenesis , and then setting the theoretical frame of the subject, which includes two main items, they are the nature of change in Morphogenesis and Morphogenesis machineries (Chapter Three).

In order to make the practical study, hypothetical conceptuins were set and test field by projects selecting was determined as well as explaining methods of measuring variables which include descriptive measurement which is made to measure the two items of the theoretical part, where measurement was made according to rules of space syntax which is made to measure the fourth item (Chapter Four).

Finally (Chapter Five), the research concluded with discussing results and final conclusions of the theoretical and practical part, where it was possible to discover that redundancy machinery was the most functioning one, where it reached to the main points related to the change nature in the genotype of the building schedule after change.

**University of Mosul
College of Engineering
Architectural Department**



**Biomimetics in Architecture
Analytical Study for Relationship Between
Morphogenesis and Change in Buildings**

**A Thesis Submitted
By**

Mafaz Tareq Yousif AL-Abbasi

To

**The Council of College of Engineering In University of Mosul
As A Partial Fulfillment of The Requirements For The Degree of Master of
Science In Architectural Engineering**

**Supervised By
Dr. Omar Hazim Kharufa
Senior Lecturer**

1438 A.H.

2017 A.D.