

Instituto Tecnológico de Estudios Superiores de Monterrey
Campus Estado de México
presents

Nexus V

Architecture and Mathematics

edited by
Kim Williams and Francisco J. Delgado Cepeda



CONTENTS

KIM WILLIAMS AND FRANCISCO J. DELGADO CEPEDA Preface	7
HERNÁN DÍAZ ALONSO, FLORENCIA PITA Topologies of Beauty: From the Ugly to the Horrific	9
KIVI SOTAMAA Driven by the Sublime	13
JAVIER BARRALLO, SANTIAGO SANCHEZ-BEITA Mathematics and Structural Repair of Gothic Structures	21
MARIA TERESA BARTOLI The Fibonacci Sequence and the Palazzo della Signoria in Florence	31
MICHAEL BISPHAM The Rod Method: Traditional Numberless Design and Layout	43
GERARDO BURKLE-ELIZONDO, NICOLETTA SALA, RICARDO VALDÉZ-CEPEDA Geometric and Complex Analyses of Maya Architecture: Some Examples.....	57
YVONNE DOLD-SAMPLONIUS, SILVIA L. HARMSSEN Muqarnas: Construction and Reconstruction	69
EUGENIA VICTORIA ELLIS Geomantic (Re)Creation: Magic Squares and Claude Bragdon's Theosophic Architecture.....	79
GULZAR HAIDER, MUHAMMAD MOUSSA Explicit and Implicit Geometric Orders in Mamluk Floors: Secrets of the Sultan Hassan Floor in Cairo	93
CAROL HERMANN Architecture and Programming: Generative Design	105
IZUMI KUROISHI Mathematics of Carpentry in Historic Japanese Architecture	117
JIN-HO PARK Triangular Geometry in Rudolph Schindler's Packard House of 1924	131
RAFAEL RAMÍREZ PONCE, ALFONSO RAMÍREZ MELENDEZ Curves of Clay: Mexican Brick Vaults and Domes.....	143
MARK A. REYNOLDS A New Geometric Analysis of the Teotihuacan Complex.....	155
RADOSLAV ZUK From Renaissance Musical Proportions to Polytonality in Twentieth Century Architecture.....	173