

Contents

10	Foreword from the Working Group for Architectural Informatics	Chapter 1 The Computer as a Drawing Machine	Chapter 2 The Computer as a Design Tool
12	Foreword <i>Andres Lepik</i>	Essays	Essays
14	Introduction <i>Teresa Fankhänel</i>	20 Paper(less) Architecture: Medial and Institutional Superimpositions <i>Anna-Maria Meister</i>	60 Architecture Goes Digital: The Discrete <i>Mollie Claypool</i>
		28 Architecture, Computer, and Technological Unrest: Toward an Architectural History of Anxiety <i>Georg Vrachliotis</i>	68 Creativity and Problem-Solving: Tracing the Stakes of Computer- Aided Design <i>Molly Wright Steenson</i>
		Case Studies	Case Studies
		34 Sketchpad / Sketchpad Reconstruction <i>Ivan Sutherland / Daniel Cardoso Llach, Scott Donaldson</i>	76 Reptile Flexible Enclosure System <i>John Frazer, Richard Parkins, Francisco Guerra</i>
		38 Imaginary Architecture <i>Otto Beckmann, Alfred Graß, Oskar Beckmann</i>	80 Siemens CeBIT-Pavillon <i>Ludwig Rase, Georg Nees, Jost Clement</i>
		42 Federal Government Buildings Competition <i>Oswald Mathias Ungers, Werner Goehner</i>	84 RESOWI Center <i>Manfred Wolff-Plottegg</i>
		46 Multihalle in Mannheim <i>Frei Otto, Carlfried Mutschler</i>	86 BMW Bubble <i>Bernhard Franken with ABB Architekten, Bollinger + Grohmann Ingenieure</i>
		50 Alternative Input Devices <i>John Frazer, Julia Frazer, AA Diploma Unit 11</i>	90 Victoria and Albert Museum Spiral Extension <i>Daniel Libeskind, Cecil Balmond, Francis Archer, Daniel Bosia, Arup Advanced Geometry Unit</i>
		54 Plotter Drawings <i>Günter Günschel</i>	94 Dunescape <i>SHoP Architects</i>
			98 Ark of the World Museum <i>Greg Lynn</i>
			102 TRUTEC Building <i>Barkow Leibinger</i>
			106 O-14 <i>Reiser + Umemoto RUR Architecture, ERGA Progress, Ysrael A. Seinuk PC</i>
			110 Geno Matrix <i>Tang & Yang</i>

Chapter 3
The Computer as a Medium for Storytelling

Essays

114 Seeing by Numbers: A Short History of Computer Renderings
Roberto Bottazzi

122 Movement, Time, and Architecture
Teresa Fankhänel

Case Studies

130 Cornell in Perspective
Donald P. Greenberg, Students at Cornell University College of Architecture, Art, and Planning

132 Skeleton Animation System
David Zeltzer, Donald Stredney, Judy Sachter

134 9 Cities
Skidmore, Owings & Merrill, Robert Abel / William Kovacs Inc.

138 Locomotion Studies / Evolved Virtual Creatures
Karl Sims

142 Eyebeam Atelier
Competition Entries

146 Arctic
Lucia Frascerra

148 Villa R
Dyvik Kahlen

152 Prince Claus Bridge
Mir Studio, Powerhouse Company, Miebach

154 The Elephant and the Corsair
Dennis Allain

156 Hilma af Klint Museum
Jana Čulek

160 Sørli Visitor Center
Brick Visual Solutions, Saaha AS, Asplan Viak AS

Chapter 4
The Computer as an Interactive Platform

Essays

164 Playing Architect. Designing with Computer Games
Felix Torkar

172 Computing Choice: Self-Design, Configurators, and the Enumerative Imagination
Theodora Vardouli

Case Studies

180 URBAN 5
Nicholas Negroponte, Architecture Machine Group

184 Aspen Movie Map
Michael Naimark, Peter Clay, Bob Mohl, Architecture Machine Group

188 The Walter Segal Model
John Frazer, Julia Frazer, John Potter

192 ARMILLA
Fritz Haller, Jupp Gauchel, Christoph Mathys, Ludger Hovestadt, Angelika Drach, Volkmar Hovestadt, Peter Raetz

196 H₂Oexpo
Lars Spuybroek, Joan Almekinders, Peter Heymans, Maurice Nio, William Veerbeek, Jan van der Windt

200 The Virtual House Competition
ANY, with FSB—Franz Schneider Brakel GmbH + Co KG

204 Guggenheim Virtual Museum
Asymptote Architecture

208 Barclays Center
SHoP Architects, Hunt Construction Group, Ellerbe Becket/AECOM, Thornton Tomasetti

212 Hyper-Reality
Keiichi Matsuda

216 London Developers Toolkit
You+Pea

220 Transcribed Nature
Atelier Oslo

Architectural Software Timeline
Philip Schneider and Teresa Fankhänel

226 Drawing and Modeling

230 Rendering and Animation

234 Scripting and Analysis

240 Biographies

242 Acknowledgments

244 Illustration Credits

247 Imprint