

A BUELL CENTER COLUMBIA BOOK OF ARCHITECTURE

HIGH-RISE CONSTRUCTION AND THE MODERN MOVEMENT 7

CHAPTER i The Theoretical Contributions of Le Corbusier 11

The Cruciform Skyscraper (1920-1930)11The Cartesian Skyscraper (1930-1938)15The Lozenge-Shaped Skyscraper (1938-1950)25TABLE 1Le Corbusier Skyscrapers31

TECHNOLOGICAL EVOLUTION OF CONTEMPORARY HIGH-RISE STRUCTURES 37

CHAPTER 2 Structural Development 41

The End of the Reticulated Frame 41 The Contribution of SOM (1953-1970) 54 Contemporary Structural Optimization: The Logic of Eccentricity 70 Contemporary Structural Optimization: Dissipated Energy 86 TABLE 2 Structural Evolution 94

CHAPTER 3 Evolution of Glass Curtain Wall Construction 99

Glass in Modern Architecture99The Contemporary Glass Skin110

CHAPTER 4 The Mechanically Regulated Environment and Its Structural Implications 137

From the United Nations Secretariat to the Office Landscape (1950-1970) 137 From the Office Landscape to the Automated Building (1970-2000) 150 ^TABLES 3,4 Structural Implications of the Mechanically Regulated Environment 166, 169

TYPOLOGICAL AND URBAN EVOLUTION OF THE CONTEMPORARY HIGH-RISE BUILDING 173

CHAPTER 5 The Evolution of Space Planning in the Workplace 177

Planned Labor: The Taylorist Office 177 The Open-Plan Office, the Office Landscape, and the Automated Workstation 190 TABLE 5 Evolution of the Spatial Organization of the Workplace 212

CHAPTER 6 Evolution of Topological Planning in the High-Rise Building:

The Mixed-Use Skyscraper 217

The Modern Skyscraper and Superimposed Functions 217 Contemporary Mixed-Use Skyscrapers: Planning and Technology in Design 228 TABLE 6 Stratified Organization in Skyscrapers 258

EPILOGUE 265 NOTES 273 ILLUSTRATION CREDITS 285 INDEX OF NAMES 291 0

II