Ulrich Knaack, Tillmann Klein, Marcel Bilow, Thomas Auer

Façades

Principles of Construction

Second and revised edition

CONTENTS

7 1 Introduction	36 3 Principles of Construction
	 37 Areas of construction 38 Façade bearing structures and load transfer 42 Grid and positioning of the façade within the building 44 Systems used in façade construction 45 Post-and-beam construction 46 Unit system façade 46 Designing with systems 47 Openings in façade constructions 47 Hardware 48 Windows 50 Assembly
23 Platform and balloon framing 24 Resolution of the wall into	52 4 Detailing and Tolerances 54 Building grid and positioning of component 56 Combination of functions 57 Detailing principles 57 Layering of details 58 Examples of detail development 59 Masonry cladding 59 Post-and-beam façade 60 Unit system façade 61 Parapet 62 Plinth unit 63 Joints

70 | 5 Climate and Energy

- 70 | Façade as interface to the exterior
- 70 | Functional requirements
- 71 | Thermal requirements
- 72 | Visual requirements
- 73 | Hygienic requirements
- 73 | Acoustic requirements

74 | Regulating the comfort level with the façade

- 74 | Ventilation
- 77 | Heating
- 78 | Cooling
- 80 | Sun and glare protection
- 84 | Light-directing systems

85 | 6 Adaptive Façades

- 85 | Sun
- 86 | Light
- **86** | Heat
- 87 | Greenhouse effect
- 87 | History of adaptive façades
- 90 | Collector façade
- 90 | Trombe wall
- 91 | Transparent heat insulation
- 92 | Exhaust-air façade
- 93 | Double façade
- 94 | Box-window façade
- 95 | Shaft-box façade
- 96 | Corridor façade
- 98 | Second-skin façade
- 100 | Alternating façade
- 100 | Integrated façade

102 | 7 Case Studies

102 | Rear-ventilated façade

Concept House, RDM Campus, Rotterdam

106 | Solid façade

State Archive Nordrhein-Westfalen, Duisburg

110 | Post-and-beam façade

New building for the Department for Architecture and Interior Design at the University of Applied Sciences, Detmold

114 | Unit system façade

Headquarters Süddeutscher Verlag, Munich

118 | 8 A Look Into the Future

- 120 | Material and construction
- 124 | Climate, comfort, energy
- 126 | Production and assembly
- 127 | (Design) tools

Appendix

- 128 | Authors
- 129 | Selected bibliography
- 130 | Index
- 131 | Illustration credits