

The background of the book cover is a photograph of a modern building's interior. It features a large, vaulted glass and steel roof structure that allows natural light to filter through. Below the roof, there are curved architectural elements and what appears to be a walkway or balcony with a glass railing. The overall color palette is dominated by blues and purples, with the sun's glow visible through the glass panels.

DAVID ETHERIDGE

# Natural Ventilation of Buildings

THEORY, MEASUREMENT  
AND DESIGN

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# Natural Ventilation of Buildings

## THEORY, MEASUREMENT AND DESIGN

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Natural ventilation is increasingly considered a prerequisite for sustainable buildings and is therefore in line with current trends in architecture and the construction industry.

The design of naturally ventilated buildings is more difficult and carries greater technical risk than the design of mechanically ventilated buildings. A successful result relies on a good understanding of the abilities and limitations of the theoretical and experimental techniques that form the basis of design.

The underlying difficulties with design arise from the driving forces: wind and buoyancy. Equal prominence is given to these and to their combination. Their importance in relation to achieving the required ventilation strategies is one of the important issues that is covered in some detail.

*Natural Ventilation of Buildings: Theory, Measurement and Design* comprehensively explains the fundamentals of the theory and measurement of natural ventilation, as well as the current state of knowledge and how this can be applied to design. The book also relates theoretical and experimental techniques to problems faced by designers. Particular attention is given to the limitations of the various techniques and the associated uncertainties.

### Key features:

- Comprehensive coverage of the theory and measurement of natural ventilation
- Detailed coverage of the relevance and application of theoretical and experimental techniques to design
- Highlights the strengths and weaknesses of techniques and their errors and uncertainties
- Comprehensive coverage of mathematical models, including CFD
- Two chapters dedicated to design procedures and another devoted to the basic principles of fluid mechanics that are relevant to ventilation

This comprehensive account of the fundamentals for natural ventilation design will be invaluable to undergraduates and postgraduates who wish to gain an understanding of the topic for the purpose of research or design. The book should also provide a useful source of reference for more experienced practitioners in industry and architecture.



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ISBN 978-0-470-66035-5



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# Contents

<b>Preface</b>	<b>xvii</b>
<b>Acknowledgements</b>	<b>xix</b>
<b>Principal Notation</b>	<b>xxi</b>
<b>1 Introduction and Overview of Natural Ventilation Design</b>	<b>1</b>
1.1 Aims and Scope of the Book	1
1.1.1 <i>Aims</i>	1
1.1.2 <i>Scope</i>	2
1.2 Natural Ventilation in Context	3
1.2.1 <i>Hierarchy of Ventilation Systems</i>	4
1.2.2 <i>Advantages and Disadvantages of Natural Ventilation</i>	5
1.2.3 <i>Differences between Natural and Mechanical Ventilation</i>	6
1.3 Overview of Design	6
1.3.1 <i>Overall Design Process</i>	7
1.3.2 <i>Stage 1: Assessing Feasibility</i>	7
1.3.3 <i>Stage 2: Choosing a Ventilation Strategy</i>	7
1.3.4 <i>Stage 3: Achieving the Ventilation Strategy</i>	10
1.3.5 <i>Stage 4: Internal Air Motion and Related Phenomena</i>	11
1.3.6 <i>Stage 5: Commissioning</i>	12
1.4 Notes on Sources	12
1.4.1 <i>Coverage of Recent and Past Developments</i>	13
1.4.2 <i>Natural Ventilation and Safety</i>	14
References	15
<b>2 Physical Processes in Natural Ventilation</b>	<b>17</b>
2.1 Introduction	17
2.1.1 <i>Fundamental Principles of Fluid Mechanics</i>	18
2.1.2 <i>Numerical Analysis and CFD</i>	18
2.2 The Effect of Gravity on Ventilation Flows	18
2.2.1 <i>Navier–Stokes Equations</i>	19
2.2.2 <i>Hydrostatic and Piezometric Pressures</i>	19
2.2.3 <i>Envelope Flows</i>	21
2.2.4 <i>Internal Air Motion</i>	21

2.3	Types of Flow Encountered in Ventilation	23
2.3.1	<i>Reynolds Number</i>	23
2.3.2	<i>Laminar Flow</i>	23
2.3.3	<i>Transitional Flow</i>	23
2.3.4	<i>Turbulent Flow</i>	25
2.4	Fluid Mechanics – Other Important Concepts and Equations	25
2.4.1	<i>A Fluid as a Continuum</i>	25
2.4.2	<i>Transport Mechanisms</i>	26
2.4.3	<i>Momentum Principle – Newton's Laws of Motion</i>	27
2.4.4	<i>Momentum Equations for a Defined Body of Fluid and a Control Volume</i>	27
2.4.5	<i>Hydrostatic Equation</i>	28
2.4.6	<i>Steady Flow</i>	28
2.4.7	<i>Mass Conservation for an Envelope</i>	28
2.4.8	<i>Bernoulli's Equation</i>	29
2.4.9	<i>Energy Equations for a System and a Fixed Control Volume</i>	29
2.4.10	<i>Loss Coefficient and Resistance Coefficient</i>	30
2.4.11	<i>Still-air Discharge Coefficient and Resistance Coefficient</i>	31
2.4.12	<i>Flow Separation</i>	31
2.4.13	<i>Irrotational Flow</i>	32
2.5	Steady and Unsteady Ventilation	33
2.6	Flow Through a Sudden Expansion	33
2.6.1	<i>Momentum and Continuity Equations</i>	34
2.6.2	<i>Energy Equation</i>	35
2.6.3	<i>Diffusion (Molecular and Turbulent)</i>	36
2.7	Dimensional Analysis	37
2.8	Heat Transfer between Air and Envelope	39
2.9	Definitions Relating to Ventilation Rate	41
2.9.1	<i>Envelope Flows – Single Cell</i>	41
2.9.2	<i>Envelope Flows – Multi-cell Buildings</i>	42
2.9.3	<i>Measurement of Ventilation Rate</i>	42
2.9.4	<i>Effectiveness of Ventilation and Local Ventilation Rates</i>	43
2.10	Errors and Uncertainties	43
2.11	Mathematical Models	44
2.11.1	<i>Envelope Flow Models (Chapters 4 and 5)</i>	44
2.11.2	<i>Zonal Models (Chapter 6)</i>	44
2.11.3	<i>Dynamic Thermal Models</i>	44
2.11.4	<i>CFD</i>	45
2.12	Boundary Conditions	45
2.12.1	<i>Velocity</i>	45
2.12.2	<i>Temperature</i>	45
	Bibliography	46
	References	46

<b>3</b>	<b>Steady Flow Characteristics of Openings</b>	<b>47</b>
3.1	Introduction	47
3.1.1	<i>Still-air Discharge Coefficient</i>	48
3.1.2	<i>Installation Effects</i>	48
3.2	Classification of Openings	48
3.2.1	<i>Shapes of Openings</i>	49
3.2.2	<i>Sizes of Openings</i>	51
3.2.3	<i>Reynolds Numbers Encountered in Practice</i>	53
3.2.4	<i>Types of Opening</i>	54
3.3	Still-air Discharge Coefficient	56
3.3.1	<i>Sharp-edged Orifices and Air Vents (Type 2)</i>	56
3.3.2	<i>Long Openings – Adventitious (Type 1)</i>	58
3.3.3	<i>Long Openings – Ducts and Chimneys (Type 3)</i>	62
3.3.4	<i>Permeable (Porous) Materials – Dynamic Insulation (Type 1)</i>	63
3.3.5	<i>Summary of <math>C_d</math> Relations</i>	64
3.4	Installation Effects on $C_d$	64
3.4.1	<i>Expected Effects of Cross-flow</i>	66
3.4.2	<i>Observed Effects of Cross-flow</i>	68
3.4.3	<i>Surface Openings that are Not Flush</i>	73
3.4.4	<i>Installation Effects – Pressure Variations</i>	75
3.5	Openings in Combination	75
3.5.1	<i>Power Law and Quadratic Equation</i>	76
3.5.2	<i>Envelope Leakage</i>	77
3.6	Determination of $C_d$	77
3.6.1	<i>Laboratory Measurement at Full Scale</i>	78
3.6.2	<i>Wind Tunnel Measurement at Model Scale</i>	81
3.6.3	<i>Application of Loss Coefficients</i>	82
3.6.4	<i>CFD Calculations and Analytic Solutions</i>	82
3.7	Uncertainties in Design Calculations	82
3.8	Other Definitions of Discharge Coefficient	83
3.9	Large (and Very Large) Openings	84
3.9.1	<i>Large External Opening in an Otherwise Sealed Room</i>	84
3.9.2	<i>Large Internal Opening Separating Two Spaces with Small Openings</i>	85
3.10	Relevance to Design	86
	References	86
<b>4</b>	<b>Steady Envelope Flow Models</b>	<b>89</b>
4.1	Introduction	89
4.1.1	<i>Conventional Envelope Flow Models</i>	90
4.2	Basic Theory	91
4.2.1	<i>Piezometric Pressure Difference</i>	91
4.2.2	<i>Flow Equations</i>	94
4.2.3	<i>Conservation of Mass for the Envelope</i>	94
4.2.4	<i>Assumptions in Basic Theory</i>	95

4.3	Single- and Multi-cell Models	95
4.3.1	<i>Single-cell Models</i>	96
4.3.2	<i>Multi-cell Models</i>	98
4.3.3	<i>Uniqueness of Solutions</i>	99
4.3.4	<i>Steady Envelope Models and Slowly Varying Boundary Conditions</i>	99
4.4	Simple Analytic Solutions	100
4.4.1	<i>Analysis for Wind and Buoyancy</i>	100
4.4.2	<i>Wind Alone</i>	103
4.4.3	<i>Buoyancy Alone</i>	104
4.4.4	<i>Wind and Buoyancy Combined</i>	104
4.5	Non-uniform Density	106
4.5.1	<i>Buoyancy and Vertical Openings</i>	108
4.6	Turbulent Diffusion	110
4.7	Large Openings	111
4.8	Adventitious Openings	111
4.9	Explicit Method of Solution	112
4.9.1	<i>Effect of Wind with Upward Ventilation</i>	113
4.9.2	<i>Effect of Wind with Top-down Ventilation</i>	113
4.9.3	<i>Inclusion of Fans</i>	116
4.10	Uncertainties in Envelope Flow Models	116
4.10.1	<i>Purpose-provided Openings</i>	116
4.10.2	<i>Adventitious Openings</i>	117
4.10.3	<i>External and Internal Temperatures</i>	117
4.10.4	<i>Wind Pressures</i>	120
4.10.5	<i>Relative Importance of Wind and Buoyancy - Flow Patterns</i>	120
4.11	Combined Envelope Models and Thermal Models	120
4.11.1	<i>Simple Thermal Equilibrium Models</i>	122
4.11.2	<i>Simple Dynamic Thermal Models</i>	124
4.11.3	<i>General Dynamic Thermal Models</i>	125
4.11.4	<i>Combined Envelope Models and CFD</i>	125
4.12	Models for Very Large Openings	126
4.12.1	<i>Basic Theoretical Problems</i>	126
4.12.2	<i>Purely Empirical Approach</i>	128
4.12.3	<i>Semi-empirical Approach</i>	128
4.12.4	<i>CFD</i>	129
4.13	Relevance to Design	129
	References	129
<b>5</b>	<b>Unsteady Envelope Flow Models</b>	<b>131</b>
5.1	Introduction	131
5.2	Flow Equation	132
5.2.1	<i>Principle of Linear Momentum</i>	132
5.2.2	<i>Quasi-steady Temporal Inertia Theory</i>	134
5.2.3	<i>Support for the Assumptions</i>	135
5.2.4	<i>Specification of Inertia Length <math>l_e</math></i>	138

5.3	Pressure Difference across Openings	138
5.4	Mass Conservation Equation	139
5.5	Envelope Flow Models	139
5.5.1	<i>QT Model</i>	140
5.5.2	<i>Non-Dimensional Form of QT Model</i>	140
5.5.3	<i>Important Non-dimensional Parameters</i>	143
5.5.4	<i>Other Models</i>	143
5.6	Comparisons with Measurement	144
5.6.1	<i>Two Openings</i>	144
5.6.2	<i>Multiple Openings</i>	146
5.7	Mean Flow Rates	146
5.7.1	<i>Single Opening in a Sealed Room</i>	147
5.7.2	<i>Two Openings with Wind and Buoyancy</i>	149
5.8	Instantaneous Flow Rates	151
5.9	Unsteady Flow Models in Design	153
5.9.1	<i>Mean Flow Rates</i>	153
5.9.2	<i>Instantaneous Flow Rates</i>	154
5.9.3	<i>Multiple Openings</i>	155
5.10	Relevance to Design	155
	References	155
<b>6</b>	<b>Internal Air Motion, Zonal Models and Stratification</b>	<b>157</b>
6.1	Introduction	157
6.1.1	<i>Cases of Interest</i>	158
6.1.2	<i>Comparison with Mechanical Ventilation Design</i>	159
6.1.3	<i>Importance of Stratification</i>	159
6.1.4	<i>Well-mixed Spaces and Uniform Temperature</i>	160
6.2	Governing Equations	160
6.2.1	<i>Mathematical Models</i>	160
6.2.2	<i>Dimensional Analysis</i>	161
6.3	Primary and Secondary Flows	162
6.3.1	<i>Jets</i>	163
6.3.2	<i>Plumes</i>	164
6.3.3	<i>Flow through Internal Doors</i>	164
6.3.4	<i>Flows in Bounded Spaces</i>	167
6.4	Zonal Models	168
6.4.1	<i>Primary Flow Models</i>	169
6.4.2	<i>Secondary Flow Models</i>	170
6.4.3	<i>Performance of Zonal Models (Secondary Type)</i>	174
6.4.4	<i>Relevance of Zonal Models to Design</i>	175
6.5	Coarse-grid CFD	176
6.6	Integrated Zonal and Envelope Flow Models	177
6.6.1	<i>Buoyancy Alone</i>	177
6.6.2	<i>Wind and Buoyancy</i>	179
6.6.3	<i>Relevance to Design</i>	179