Responsive environments

A manual for designers
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgements</td>
<td>8</td>
</tr>
<tr>
<td>Introduction</td>
<td>9</td>
</tr>
<tr>
<td>Chapter 1: Permeability</td>
<td>12</td>
</tr>
<tr>
<td>Chapter 2: Variety</td>
<td>27</td>
</tr>
<tr>
<td>Chapter 3: Legibility</td>
<td>42</td>
</tr>
<tr>
<td>Chapter 4: Robustness</td>
<td>56</td>
</tr>
<tr>
<td>Chapter 5: Visual appropriateness</td>
<td>76</td>
</tr>
<tr>
<td>Chapter 6: Richness</td>
<td>89</td>
</tr>
<tr>
<td>Chapter 7: Personalisation</td>
<td>99</td>
</tr>
<tr>
<td>Chapter 8: Putting it all together</td>
<td>106</td>
</tr>
<tr>
<td>Notes</td>
<td>143</td>
</tr>
<tr>
<td>Suggestions for further reading</td>
<td>144</td>
</tr>
<tr>
<td>Bibliography</td>
<td>147</td>
</tr>
<tr>
<td>Index</td>
<td>149</td>
</tr>
</tbody>
</table>
Index

Access points, 14, 15, 17, 110, 111
- (see also Linkage)
Affordable space, 28
Aix en Provence, France, 53
American hotel, Amsterdam, Netherlands, 53
Amsterdam, Netherlands, 53, 64, 69, 84, 103
Appeldoorn, Netherlands, 10, 67
Arras, France, 53
Backs: see Buildings
- and private routes, 17
Bath, England, 53
Birmingham, England, 43, 64
Block, 12, 15
- average block dimension, 20, 22
- checking block size, 17, 20-26, 118
- private space within, 15
- shape, 15
- size, 12, 17, 19, 52
- space within, 20
- structure, 15
  Boston, Massachusetts, USA, 43-45
  Buildings
    access, 57, 62
    backs, 14, 17
    depth, 20, 57, 62
    existing, 17
    fronts, 14, 17
    height, 52-54, 57, 62
    internal organisation, 58
    line, 19
    preferred configuration, 57, 60, 62
  Building elements
    - doors, 14, 16, 80, 81, 84, 85, 101, 103
    - porches, 103
    - windows, 76, 80, 81, 84, 85, 101, 104
  Building type and personalisation, 100
  Butterfield, William, 93
  Buxton, England, 70
Car parks, 130
Cardiff, Wales, 13, 28
Centraal Beheer, Appeldoorn, Netherlands, 10, 67
Centre Pompidou, Paris, France, 92
Chicago, Illinois, USA, 98
Chorleywood, England, 67
City Hall, Sheffield, England, 70
Colmar, France, 60
Combined pedestrian/vehicular spaces, 72, 117
Connection, 14
- to city as a whole, 16
- to immediate locality, 16
- to main street system, 16
- using existing links, 16, 17
Contextual cues, 78, 80, 82-86
- and adjacent buildings, 84, 85
- and the surrounding area, 82, 83
- elements and relationships between them, 82, 83, 90
- (see also Use cues and Visual cues)
Courtenay Square, Kensington, London, England, 63
Cues
- see Contextual, Use and Visual cues.
Culs-de-sac, 13
Delft, Netherlands, 42, 72
Demand, 28, 29, 32
- and estate agents, 32
- and pedestrian flows, 33
- social and speculative demand, 32
Detached houses, 61
- see also Family houses
Development agencies, 31, 32, 40, 79
Districts
- and legibility, 43, 45, 47, 49-51, 123
- and variety, 27
- and visual appropriateness, 78, 80, 81
Doors, 14, 76, 80, 81, 84, 85, 101, 103
Dunfermline, Scotland, 105
Edges, 43-45, 47, 49
- and visual appropriateness, 78, 80
Eguisheim, France, 70
Entrances, 14, 138
- and nodes, 54
- and public space, 13
- (see also Doors and Thresholds).
External surfaces
- and personalisation, 105
- (see also Surface details and Visual appropriateness).
Family houses
- and perimeter blocks, 24-26
- and robustness, 57, 60, 61
Feasibility, 30, 117
- financial, 30, 31, 116
- functional, 30, 31
- political, 30, 31
- three levels of feasibility, 30
Financial feasibility, 31, 32, 35-41
- and robustness, 57
- calculating project costs, 37, 38, 116
- calculating project value, 35, 36, 116
- checking feasibility, 39-41, 116
Flats, 22, 23, 129
Fronts
- and public routes, 17
- see Buildings
Gardens, 20, 22, 59, 68
- and personalisation, 103
- garden size and robustness, 61
Glasgow, Scotland, 66
Gordon Street, London, England, 63
Grain of variety, 27
Grimsby, England, 99
Halprin, Lawrence, 92
Helensburgh, Scotland, 67
Hertzberger, Herman, 10, 67
Hierarchical street layouts, 12, 13
Hollyhock House, Los Angeles, California, USA, 93
Horizontal rhythms, 80, 81, 84, 85
Hull, England, 50
Image and personalisation, 99
Interfaces
- and physical permeability, 13
- and visual permeability, 13
- between public and private spaces, 12, 13, 100, 101, 130
- effects on private spaces, 14
Interlaken, Switzerland, 70
Internal cross-subsidisation, 29
Internal planning, 56-59
- active/passive areas, 58, 60
- hard/soft areas, 58, 60, 128
- large-scale robustness, 56, 57, 62, 77, 79, 128
- small-scale robustness, 56-58, 77, 79
Newcastle, England, 44, 79, 80, 85-88
New York, USA, 71, 92
Nodes, 43-47, 49, 53-55, 123
- and visual appropriateness, 78-80
Non-residential buildings
- and perimeter blocks, 20, 21

Overlooking, 15
Oxford, England, 14, 47-52, 67, 69, 78, 91-93

Paris, France, 45, 60, 69, 71, 92
Parking standards, 20, 22
Parking within blocks, 20, 22
Paths, 43-47, 49, 51-55
- and enclosure, 51, 52
- and nodes, 54
- and visual appropriateness, 78, 80
Patronage: effects on robustness, 56, 58
Pedestrian flows, 30, 33
- and robustness, 60
- concentrating pedestrian flows, 33
Pedestrian spaces, 73, 74
Performance specification for visual appropriateness, 77, 85

Perimeter blocks, 14, 15, 17, 20-26, 62, 119
- for flats, 22, 23
- minimum size: see Block
- with family houses, 24-26
- with non-residential buildings, 20-21

Permeability, 9, 10, 12-26, 109-112
- and physical form, 14
- decline of, 12
- design implications, 15
- visual permeability, 12-14, 53-55

Personalisation, 9, 11, 99-105, 139, 140
- and legibility, 99
- design implications, 101
- private, 100
- public, 100, 101

Peterborough, England, 28, 29
Philadelphia, USA, 44
Piano and Rogers, 92
Piazza San Marco, Venice, Italy, 59
Place Dauphine, Paris, France, 60
Planning controls on supply of space, 32
Plečnik, Jože, 98
Porches, 103
Portland, Oregon, USA, 92

Preferred building configuration, 57, 60, 62, 128
Primary uses, 30, 115
Privacy, 12-14, 52
Private outdoor space, 12, 13, 15, 20, 22, 60
- and backs, 14
- garden space, 59, 68
Project costs, 37, 38
Project values, 35, 36
Public outdoor space, 12, 13, 56, 58-60, 130
- activities in, 56, 58, 60, 129, 130
- and fronts, 14
- and visual appropriateness, 76
- pedestrian activity, 60, 73, 74, 130
- the edge, 59, 60, 69, 70
- vehicular activity, 60, 130

Reading, England, 50, 106-142
Retaining existing buildings, 29
Richness, 9, 11, 89-98, 135-138
- costs, techniques and materials, 91
- design implications, 91
- non-visual richness, 89, 91, 92, 135
- visual elements, 90
Riquewihr, France, 69
Robustness, 9, 10, 56-75, 126-130
- active/passive areas, 58, 60
- and visual appropriateness, 76-80
- and costs, 56
- design implications, 60
- hard/soft areas 58, 60, 128
- in public outdoor space, 56, 58-60, 129, 130
- inside buildings, 56-59
- large-scale robustness, 56, 57, 62, 77, 79, 128
- small-scale robustness, 56-58, 77, 79

Rome, Italy, 93
Room shape, 58, 60
Room size, 58, 60
Routes, public and private, 17
San Juan Capistrano, California, USA, 67
Scale of development, 12
Seating, 69, 70, 73, 74
Secondary uses, 30
Segregation of vehicular and pedestrian routes, 13, 43, 118
Semi-detached houses, 61
Sensory choice: see Richness, 89-98
Sheffield, England, 13, 70, 73
Shopping centres, 30, 33
Single-aspect buildings, 129
  - and compatibility of uses, 34, 35
  - and path enclosure, 52
Skylines, 80, 81, 84, 85
South Molton Street, London, England, 63
Squares
  - as nodes, 54
  - Portland Square, 92
Streets
  - alignment, 49
  - classification, 18, 19, 46, 53, 117
  - connections, 14
  - main 16, 18
  - traffic roles, 15, 18
  - types, 18, 33
  - widths, 15, 18, 19, 33, 117
Street/block structure, 17, 20, 112
  - and junction spacings, 19
Street enclosure, 46, 50, 51
Subsidies, 28, 29
Surface details
  - and personalisation, 101
  - and richness, 89-91, 93
  - ground level, 80, 81, 85, 92
  - walls, 80, 81, 84, 102
Swindon, England, 78
Technology and personalisation, 100, 102, 104
Tenure and personalisation, 100, 101
Terraced housing, 61, 126
Thresholds, 101, 103
  - see also Doors
Thun, Switzerland, 60
Traffic
  - capacities, 18
  - flows, 18
Trees
  - and enclosure, 74
  - spacing of, 74
Treviso, Italy, 56, 70
Use
  - and block size, 17, 20
  - and legibility, 42, 50
  - and variety, 27
  - and vehicle flows, 18
  - assessing demand, 20, 32, 113
  - compatibility of uses, 30-32, 34, 113-114
  - flats, 20, 22, 23
  - houses with gardens, 20, 24-26
  - intensity of, 15
  - mutual support between, 30
  - non-residential, 20
  - primary and secondary, 30, 115
Use cues, 78, 80, 85, 86
Utrecht, Netherlands, 60, 72
Van Eyck, Aldo, 84
Variety, 9, 10, 27-41, 77, 113-116
  - and choice, 27
  - and meaning, 27
  - and rents 28, 29
  - and retaining old buildings, 28, 29
  - and physical form, 27
  - and use, 27
  - and visual appropriateness, 76, 78-80
  - decline of, 27-29
  - design implications, 31
  - how to encourage variety, 31
  - maximising variety, 28
Vehicle flows, 18, 60, 71, 81, 130
Venice, Italy, 57
Vertical rhythms, 80, 81, 84, 85
Veurne, Belgium, 59, 70
Vienna, Austria, 93
Viewing distance, 90, 91, 94-97, 137, 138
Viewing points
  - and permeability, 16
  - and richness, 89, 90, 93-95, 136
Viewing time, 90, 91, 94-98, 138
Visual appropriateness, 9, 10, 76-88, 131-134
  - and environmental experience, 77, 78
  - and users' objectives, 77, 78
  - design implications, 78
  - large-scale cues, 81, 84, 86, 132
  - of publicly-visible surfaces, 77-80, 101, 131
  - small-scale cues, 81, 84, 86, 133
  - to support legibility, 76, 78
  - to support robustness, 76, 78, 85
  - to support variety, 76, 78, 85
Visual character, 82-84
Visual contrasts, 90, 91, 93
Visual cues, 10, 76-78, 80
  - checklist of visual features 80, 81, 84
  - large-scale, 81, 84, 86
Voysey, Charles Francis Annesley, 67
Walkley Netherthorpe, Sheffield, England, 13
Windows, 14, 76, 80, 81, 84, 85, 101, 104
Woonerf, 72
Yields, 32, 36, 41