## Index

Aalto, Alvar, 158, 181, 288, 289, 322, 325
Abbey Church of S. Maria, Forlinito, Italy, 172
accuracy, presentation drawing, 376
activity, people, composition, 365
Adam, Robert, 319
additive forms, 76
aerial view, parallel view, 210
Alice in Wonderland (Carroll), 294
ambient lighting, composition, 359
ambiguity
composition, figure-ground relationship, 351
speculative drawing, 232–93
analytical diagram, 315
analytical drawing, 68–71
angle(s), sighting, 30–31
angled lines, drawing process, 128
angle of view, perspective variables, 234
animation, presentation drawing, 394–98
Anti-Villa, Napa Valley, California (Batey & Mack), 377
architect's scale, scale drawing, 122
architect's scale, scale drawing, 122
area diagrams, 314
arrow, diagramming relationships, 318
Asplund, Erik Gunnar, 174, 323
asymmetry, balance, composition, 354–55
atmospheric perspective
building elevation drawings, 167
depth cues, 90
audio, animation, presentation drawing, 398
auxiliary views, orthogonal views, 139
axes, one-point perspective, 250
axial lines, paraline drawings, 193
axonometric projection and drawing, paraline drawings, 196
backlighting, shade and shadow, 53
balance, composition, 354–55
Bâr Harbor Wicker chair, 372
Barth, Edward Larabee, 322
Barraquen, Luis, 363
Barraquen House and Atelier, Tacubaya, Mexico City (Luis Barráquen), 363
Batey & Mack, 377
Bézier curve, pictorial systems, 132
bisection, of lines, drawing process, 128
blind contour drawing
modified contour drawing, 20, 21
process of, 19
blur perspective
building elevation drawings, 168
depth cues, 91
Bookstaver House, Westminster, Vermont (Peter L. Guck), 315
Boolean operations, digital modeling concepts, 329
Bohring, E. G., 5
Botte, Marie, 322, 380
boundary, shape, 23. See also Edges
Bradley, Charles, 146
Breuer, Marcel, 372
bubble diagrams, 314
building elevation drawings, 163–69. See also elevation drawings
arrangement, 164
depth cues, 166–69
generally, 163
orientation, 164
scale, 165
building section drawings, 171–80. See also section drawings
digital, 177–78
generally, 171
interior elevations, 173
multiple sections, 180
orientation, 173
poché, 175–76
scale, 173, 179
section cut, 174
section cut location, 172
building section perspective, 158–59
building systems, concept development, diagramming, 337
cabinet projection, oblique projection and drawings, 205
Café in Arles (Vincent van Gogh), 305
camera, digital resolution, composition, 346
camera movement, animation, presentation drawing, 395
Capital Complex, Dacca, Bangladesh (Louis Kahn), 312
Carré House, Bézique-sur-Guyonne, France, 158
Carroll, Lewis, 294
categorization, diagramming elements, 317
cascading projection, oblique projection and drawings, 205
ceiling plans, multiview drawings, 157
centerline, line drafting, 125
center of vision (CV), 225
central axis of vision (CAV), 224
chairs, 372
chance, speculative drawing, 298–303
charge-coupled device (CCD), scanning resolution, 346
circles, paraline drawings, 194
circular arc, tangent line, drawing process, 128
circulation, diagramming concepts, 322
circulation diagrams, 314
clearing, presentation drawing, 376
closure, shapes, 35
coarseness, texture, 62
cognition
speculative drawing, 290–91
visual thinking, 8–9
color
atmospheric perspective, depth cues, 90
building elevation drawings, depth cues, 167
composition, 360–62
tonal value, 41
common (office) method, two-point perspective, 262–67
communication, drawing process, 11–12
complex forms, 79
composition, 341–73
balance, 354–55
color and value, 360–62
context, 363
cropping and masking, 350
emphasis, 353
field determination, 342–43
figure-ground relationships, 351
furniture, 372
harmony, 356–57
lighting, 358–59
ordering principles, 352
people, 364–67
resolution, 345–49
digital, 345–49
scale and size, 344
vehicles, 375
concepts, diagramming, 320–25
digital, 326–27
modeling, 328–31
Concert and Convention Hall, Helsinki, Finland (Alvar Aalto), 289, 289
cone of vision, perspective projection, 224
depth cues, 90
digital, 345–49
scale and size, 344
vehicles, 375
composition, 363
concept development, diagramming, 336
tonal value, 41
common (office) method, two-point perspective, 262–67
communication, drawing process, 11–12
complex forms, 79
composition, 341–73
balance, 354–55
color and value, 360–62
context, 363
cropping and masking, 350
emphasis, 353
field determination, 342–43
figure-ground relationships, 351
furniture, 372
harmony, 356–57
lighting, 358–59
ordering principles, 352
people, 364–67
resolution, 345–49
digital, 345–49
scale and size, 344
vehicles, 375
concepts, diagramming, 320–25
digital, 326–27
modeling, 328–31
Concert and Convention Hall, Helsinki, Finland (Alvar Aalto), 289, 289
cone of vision, perspective projection, 224
context
composition, 363
concept development, diagramming, 336
textural studies, 114
continuity, presentation drawing, 377
continuity editing, animation, presentation drawing, 396
continuity of outline
building elevation drawings, depth cues, 167
depth cues, 84
contour
analytical drawing, 69
hatching technique, 43
perception, 17
site plans, 160–61
contour drawing, 18–22. See also analytical drawing:
drawing process
blur contour drawing, 19
cross contour drawing, 22
modified contour drawing, 20–21
process of, 18
contrast
categorization by, diagramming elements, 317
continuity of outline, depth cues, 84
texture, 62
tonal range, 58–59
The Control of Complexity (Habraken), 294
## INDEX

<table>
<thead>
<tr>
<th>Concept</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convergence, perspective drawing</td>
<td>228, 229</td>
</tr>
<tr>
<td>Coonley Playhouse, Riverside, Illinois (Frank Lloyd Wright)</td>
<td>319</td>
</tr>
<tr>
<td>Le Corbusier</td>
<td>156, 315, 351, 363, 378</td>
</tr>
<tr>
<td>Creativity, speculative drawing</td>
<td>299</td>
</tr>
<tr>
<td>Cropping, masking and, composition</td>
<td>350</td>
</tr>
<tr>
<td>Cross contour drawing, process of</td>
<td>22</td>
</tr>
<tr>
<td>Crosshatching technique, tonal value</td>
<td>44</td>
</tr>
<tr>
<td>Dark. See light and dark</td>
<td></td>
</tr>
<tr>
<td>CYMK color model, composition</td>
<td>362</td>
</tr>
<tr>
<td>Cutaway view, paraline view</td>
<td>211, 215</td>
</tr>
<tr>
<td>Curved lines, pictorial systems</td>
<td>132</td>
</tr>
<tr>
<td>Cross contour drawing, method of</td>
<td>22</td>
</tr>
<tr>
<td>Cropping, masking and, composition</td>
<td>289</td>
</tr>
<tr>
<td>Creativity, speculative drawing</td>
<td>289</td>
</tr>
<tr>
<td>Da Vinci, Leonardo</td>
<td>38</td>
</tr>
<tr>
<td>Da Vignola, Giacomo</td>
<td>181</td>
</tr>
<tr>
<td>Dashed line</td>
<td></td>
</tr>
<tr>
<td>Depth measurements (perspective drawing)</td>
<td>239–43</td>
</tr>
<tr>
<td>Depth cues</td>
<td>84–96</td>
</tr>
<tr>
<td>Digital viewpoints, perspective variables</td>
<td>236–37</td>
</tr>
<tr>
<td>Digital animation, presentation drawing</td>
<td>394–98</td>
</tr>
<tr>
<td>Digital building section drawings</td>
<td>177–78</td>
</tr>
<tr>
<td>Digital color, composition</td>
<td>360–62</td>
</tr>
<tr>
<td>Digital concepts, diagramming</td>
<td>326–27</td>
</tr>
<tr>
<td>Digital drawing operations, pictorial systems</td>
<td>129–31</td>
</tr>
<tr>
<td>Digital floor plans</td>
<td>152–53</td>
</tr>
<tr>
<td>Digital landscaping, composition</td>
<td>370</td>
</tr>
<tr>
<td>Digital layout, presentation drawing</td>
<td>391–93</td>
</tr>
<tr>
<td>Digital lighting, composition</td>
<td>358</td>
</tr>
<tr>
<td>Digital line weight, pictorial systems</td>
<td>126–27</td>
</tr>
<tr>
<td>Digital modeling concepts</td>
<td>328–29</td>
</tr>
<tr>
<td>Digital paraline drawings</td>
<td>214, 219–21</td>
</tr>
<tr>
<td>Digital people, composition</td>
<td>366</td>
</tr>
<tr>
<td>Digital resolution, composition</td>
<td>345–49</td>
</tr>
<tr>
<td>Digital scale, scaling drawing</td>
<td>123</td>
</tr>
<tr>
<td>Diagramming concepts</td>
<td>323</td>
</tr>
<tr>
<td>Diagramming, 313–39</td>
<td></td>
</tr>
<tr>
<td>Diagramming, analytical diagrams</td>
<td>315</td>
</tr>
<tr>
<td>Concept development, 332–39</td>
<td></td>
</tr>
<tr>
<td>Concepts, 320–25</td>
<td></td>
</tr>
<tr>
<td>Digital, 326–27</td>
<td></td>
</tr>
<tr>
<td>Modeling, 328–31</td>
<td></td>
</tr>
<tr>
<td>Elements, 316–17</td>
<td></td>
</tr>
<tr>
<td>Drawing, defined</td>
<td>1</td>
</tr>
<tr>
<td>Overview, 313</td>
<td></td>
</tr>
<tr>
<td>Relationships, 318–19</td>
<td></td>
</tr>
<tr>
<td>Types of, 314</td>
<td></td>
</tr>
<tr>
<td>Visual communication</td>
<td>11</td>
</tr>
<tr>
<td>Digital animation, presentation drawing</td>
<td>394–98</td>
</tr>
<tr>
<td>Digital building section drawings</td>
<td>177–78</td>
</tr>
<tr>
<td>Digital color, composition</td>
<td>360–62</td>
</tr>
<tr>
<td>Digital concepts, diagramming</td>
<td>326–27</td>
</tr>
<tr>
<td>Digital drawing operations, pictorial systems</td>
<td>129–31</td>
</tr>
<tr>
<td>Digital floor plans</td>
<td>152–53</td>
</tr>
<tr>
<td>Digital landscaping, composition</td>
<td>370</td>
</tr>
<tr>
<td>Digital layout, presentation drawing</td>
<td>391–93</td>
</tr>
<tr>
<td>Digital lighting, composition</td>
<td>358</td>
</tr>
<tr>
<td>Digital line weight, pictorial systems</td>
<td>126–27</td>
</tr>
<tr>
<td>Digital modeling concepts</td>
<td>328–29</td>
</tr>
<tr>
<td>Digital paraline drawings</td>
<td>214, 219–21</td>
</tr>
<tr>
<td>Digital people, composition</td>
<td>366</td>
</tr>
<tr>
<td>Digital resolution, composition</td>
<td>345–49</td>
</tr>
<tr>
<td>Digital scale, scaling drawing</td>
<td>123</td>
</tr>
<tr>
<td>Digital viewpoints, perspective variables</td>
<td>236–37</td>
</tr>
<tr>
<td>Depth measurements (perspective drawing)</td>
<td>239–43</td>
</tr>
<tr>
<td>Extensions, 242–43</td>
<td></td>
</tr>
<tr>
<td>Generally, 239</td>
<td></td>
</tr>
<tr>
<td>Method of diagonals</td>
<td>240</td>
</tr>
<tr>
<td>Method of triangles</td>
<td>241</td>
</tr>
<tr>
<td>One-point perspective</td>
<td>253</td>
</tr>
<tr>
<td>Design drawing</td>
<td>Defined, 2</td>
</tr>
<tr>
<td>Skills in, 2</td>
<td></td>
</tr>
<tr>
<td>Design process</td>
<td>9</td>
</tr>
<tr>
<td>Detail</td>
<td>Drawing process, 6</td>
</tr>
<tr>
<td>Space and depth, 108–9</td>
<td></td>
</tr>
<tr>
<td>Diagonal-point method</td>
<td>Depth measurements, perspective drawing, 240</td>
</tr>
<tr>
<td>One-point perspective, 251–55</td>
<td></td>
</tr>
<tr>
<td>Diagramming, 313–39</td>
<td></td>
</tr>
<tr>
<td>Analytical diagrams</td>
<td>315</td>
</tr>
<tr>
<td>Concept development, 332–39</td>
<td></td>
</tr>
<tr>
<td>Concepts, 320–25</td>
<td></td>
</tr>
<tr>
<td>Digital, 326–27</td>
<td></td>
</tr>
<tr>
<td>Modeling, 328–31</td>
<td></td>
</tr>
<tr>
<td>Elements, 316–17</td>
<td></td>
</tr>
<tr>
<td>Perception, 118</td>
<td></td>
</tr>
<tr>
<td>Drawing titles, presentation drawing</td>
<td>388</td>
</tr>
<tr>
<td>Dürr, Albrecht</td>
<td>29</td>
</tr>
<tr>
<td>Edges</td>
<td>Blur perspective, depth cues, 91</td>
</tr>
<tr>
<td>Line weight, 127</td>
<td></td>
</tr>
<tr>
<td>Modeling form, 48–49</td>
<td></td>
</tr>
<tr>
<td>Shade and shadow, 54</td>
<td></td>
</tr>
<tr>
<td>Editing, continuity, animation, presentation drawing</td>
<td>396</td>
</tr>
<tr>
<td>Edit pacing, animation, presentation drawing</td>
<td>396</td>
</tr>
<tr>
<td>Efficiency, presentation drawing</td>
<td>376</td>
</tr>
<tr>
<td>Elevation, orthographic views</td>
<td>136</td>
</tr>
<tr>
<td>Elevation drawings</td>
<td>See also building elevation drawings described, 162</td>
</tr>
<tr>
<td>Orthographic projection system, 121</td>
<td></td>
</tr>
<tr>
<td>Elevation oblique</td>
<td>Parallel drawings, 206–7</td>
</tr>
<tr>
<td>Projection system, 121</td>
<td></td>
</tr>
<tr>
<td>Ellipse, paraline drawings</td>
<td>194</td>
</tr>
<tr>
<td>Emphasis, composition</td>
<td>353</td>
</tr>
<tr>
<td>Engineer’s scale, scale drawing</td>
<td>123</td>
</tr>
<tr>
<td>Expanded view, paraline view</td>
<td>212, 215</td>
</tr>
<tr>
<td>Extensions, depth measurements, perspective drawing</td>
<td>242–43</td>
</tr>
<tr>
<td>Extrication, vision, drawing process, 4</td>
<td></td>
</tr>
<tr>
<td>Eye, 4, 5, 40</td>
<td></td>
</tr>
<tr>
<td>Field determination, composition</td>
<td>342–43</td>
</tr>
<tr>
<td>Figure, shape</td>
<td>23</td>
</tr>
<tr>
<td>Figure-ground relationship</td>
<td>Composition, 351</td>
</tr>
<tr>
<td>Contour, 17</td>
<td></td>
</tr>
<tr>
<td>Organization of shapes</td>
<td>32–33</td>
</tr>
<tr>
<td>Poché floor plan</td>
<td>150</td>
</tr>
<tr>
<td>Positive and negative forms</td>
<td>26–27</td>
</tr>
<tr>
<td>Shape, 24–25</td>
<td></td>
</tr>
<tr>
<td>First-angle projection, orthographic views</td>
<td>136</td>
</tr>
<tr>
<td>Flagg House, Berkeley, California (Bernard Maybeck)</td>
<td>324</td>
</tr>
<tr>
<td>Flexibility, speculative drawing</td>
<td>304–11</td>
</tr>
<tr>
<td>Floor plans, 147–56</td>
<td></td>
</tr>
<tr>
<td>Arrangement, 156</td>
<td></td>
</tr>
<tr>
<td>Digital, 152–53</td>
<td></td>
</tr>
<tr>
<td>Doors and windows, 154</td>
<td></td>
</tr>
<tr>
<td>Generally, 147</td>
<td></td>
</tr>
<tr>
<td>Orientation, 156</td>
<td></td>
</tr>
<tr>
<td>Plan cut elements, 154</td>
<td></td>
</tr>
<tr>
<td>Plane of plan cut, 148–49, 152, 154</td>
<td></td>
</tr>
<tr>
<td>Poché, 150–51</td>
<td></td>
</tr>
<tr>
<td>Scale, 155</td>
<td></td>
</tr>
<tr>
<td>Stairs, 154</td>
<td></td>
</tr>
<tr>
<td>Fluency, speculative drawing</td>
<td>295–97</td>
</tr>
<tr>
<td>Fold line, orthographic views, 136</td>
<td></td>
</tr>
<tr>
<td>Foreshortening, orthographic views, 136</td>
<td></td>
</tr>
<tr>
<td>Formal issues</td>
<td>Concept development, diagramming, 338</td>
</tr>
<tr>
<td>Diagramming concepts, 323</td>
<td></td>
</tr>
</tbody>
</table>
INDEX / 403

INDEX
INDEX

Millowners’ Association, Ahmedabad, India (Le Corbusier), 315
mind’s eye concept, 7–9
MLTW (Moore, Lyndon, Turnbull, Whitaker), 161, 181, 210, 301, 324
modeling concepts, diagramming, 328–31
modeling form. See also form and structure
tonal range, 58–59
tonal values, 48–49
tonal values mapping, 56
value pattern, 57
mode of representation, concept development, diagramming, 332–33
modified contour drawing, process of, 20–21
Monge, Gaspard, 136
modified oblique, 203–9
multiple diagonal point method, one-point perspective, 251–55
Mountain Church on Winkelmoosalm, Germany (J. Wiedemann), 179
multiple multiple sections, building section drawings, 180
multiplication, digital drawing operations, 130
multiple view drawings, 135–90. See also orthographic views
building elevation drawings, 163–69
arrangement, 164
depth cues, 166
generally, 163
orientation, 164
scale, 165
building section drawings, 171–80
digital, 177–78
generally, 171
interior elevations, 173
multiple sections, 180
orientation, 173
poché, 175–76
scale, 173, 179
section cut, 174
section cut location, 172
ceiling plans, 157
elevation drawings, 162
floor plans, 147–56
arrangement, 156
digital, 152–53
doors and windows, 154
generally, 147
orientation, 156
plan cut elements, 154
plane of plan cut, 148–49, 152, 154
poché, 150–51
scale, 155
stairs, 154
orthographic projection, 136
orthographic views, 137–43
overview, 135
plan drawings, 146
projection systems, 121
reading of, 144–45
section drawings, 170
shade and shadow, 182–90
site plans, 158–61
contour, 160–61
depth cues, 159
orientation, 158
requirements, 158
roof plan, 159
scale, 158
site sections, 181
Museum of Modern Art, Villa Strozzi, Florence, Italy (Richard Meier), 383
Nefertiti (queen of Egypt), 4
negative shape, 26–27
network diagrams, 314
Neumann, Balthasar, 211
Kimon Nicolaïdes, Kimon, 13
non-axial lines, paraline drawings, 193
Notre Dame Du Haut, Ronchamp, France (Le Corbusier), 351, 363
oblique lines, convergence principles, 229
oblique projection and drawings (paraline drawings), 203–9
elevation oblique, 206–7
generally, 203–5
plan oblique, 208–9
overview, 191
paraline view, 210–21
construction techniques, 210
cutaway view, 211, 215
depth cues, 213
expanded view, 212, 215
phantom views, 210, 214
shade and shadow, 217–21
projection systems, 121
trapezoidal projection and drawing, 202
parallel lines
convergence principles, perspective drawing, 229
drawing process, 128
parti, diagramming concepts, 320–21
path diagrams, 114
patterns, tonal value, 57
Pavilion of Supreme Harmony (Thaïhe Dian) in the Forbidden City, Beijing, China, 323
Pennsylvania, University of, Richards Medical Research Laboratory, Philadelphia (Louis Kahn), 323
people
composition, 364–67
human scale, space and depth, 104–5
pacing, animation, presentation drawing, 398
paraline drawings, 191–221
axial lines, 193
axonomic projection and drawing, 196
circles, 194
construction approaches, 192
curves, 194
dimetric projection and drawing, 200–201
freeform shapes, 194
isometric projection and drawing, 196–99
non-axial lines, 193
oblique projection and drawings, 203–9
elevation oblique, 206–7
generally, 203–5
plan oblique, 208–9
overview, 191
paraline view, 210–21
construction techniques, 210
cutaway view, 211, 215
depth cues, 213
expanded view, 212, 215
phantom views, 210, 214
shade and shadow, 217–21
projection systems, 121
trapezoidal projection and drawing, 202
parallel lines
convergence principles, perspective drawing, 229
drawing process, 128
parti, diagramming concepts, 320–21
path diagrams, 114
patterns, tonal value, 57
Pavilion of Supreme Harmony (Thaïhe Dian) in the Forbidden City, Beijing, China, 323
Pennsylvania, University of, Richards Medical Research Laboratory, Philadelphia (Louis Kahn), 323
people
composition, 364–67
human scale, space and depth, 104–5
INDEX

perception
  color, 41
  contour, 17
drawing process, 3, 4–6, 114–15
drawing systems, 118
  Gestalt psychology, 24, 34
imagination, 7, 114–15
projection, 36–37
representation, 10–12
of shape, 24, 28
sighting, 29–31
tonal value, 40
perpendicular lines
  convergence principles, perspective drawing, 229
drawing process, 128
personal style, location drawing, space and depth, 112–13
perspective. See also depth cues; size perspective
perpendicular lines, 268–71
photograph, location drawing compared, 110–11
pictorial effects
  linear perspective, depth cues, 88–89
  perspective drawing, 229–31
pictorial space, perspective, 83
pictorial systems, 119–33
  classification of, 119
  curved lines, 132
  digital drawing operations, 129–31
  geometric drawing operations, 128
  line drafting, 124–25
  line weight, 126–27
  projection systems, 120–21
  scale drawing, 122–23
picture plane (PP)
  building elevation drawings, depth cues, 166
  convergence principles, perspective drawing, 229
  location, perspective variables, 235
  perspective projection, 225
  Pilgrimage Church at Vierzehnheiligen (Balthasar Neumann), 211
pixels, digital resolution, composition, 346–49
placement, presentation drawing, 386
plan, orthographic views, 136
plan analysis diagrams, 114
planar corner, line weight, 127
plane cut, plane of, floor plans, 148–49, 152, 154
plane drawing
  multiview drawings, 146
  orthographic projection system, 121
plane(s)
  building elevation drawings, depth cues, 166
  form, 65
  orthographic views, 136
  shade and shadow, 54
  volume, 65
  plane of plan cut, floor plans, 148–49, 152, 154
  plane method, two-point perspective, 268–71
  plane oblique
    paralinear drawings, 208–9
    projection system, 121
poché
  building section drawings, 175–76
  floor plans, 150–51
point
  form, 65
  line, 15
point of view, presentation drawing, 376
positive shape, 26–27
presentation drawing, 375–99
  animation, 394–98
  elements of, 378
  layout, 389–93
overview, 375
requirements of, 376–77
sequence, 379–83
visual communication, 11
visual information sets, 384–88
print, digital resolution, composition, 347
process drawing, concept development, diagramming, 334
profile plane, orthographic views, 136
program
  concept development, diagramming, 336
  diagramming concepts, 322
  projection, shapes, 36–37
  projection systems, 120–21
  project title, presentation drawing, 388
  property line, drafting, 125
proportion
  concept development, diagramming, 336
  form and structure, 72–73
proximity organization, diagramming elements, 317
radial symmetry, balance, composition, 354–55
range, tonal value, 56–59
raster images, cropping and masking, composition, 350
ray casting, 358
ray tracing, 359
reading, visual communication, 12
reality, visual communication, 12
reception, vision, drawing process, 4
recombination, speculative drawing, 300
reflected ceiling plans, multiview drawings, 157
reflections
  perspective drawing, 281–83
  texture, 62
relationships
  diagramming, 318–19
  presentation drawing, 380
rendered view, modeling concepts, diagramming, 331
representation, drawing process, 3, 10–12
Residence at Riva San Vitale, Lugano Lake, Switzerland (Mario Botta), 322
resolution
  composition, 345–49
  digital, composition, 345–49
retina, 4, 5, 40
RGB color model, composition, 361
Richards Medical Research Laboratory, University of Pennsylvania, Philadelphia (Louis Kahn), 323
Riola Parish Center, Bologna, Italy, 181
Riva San Vitale Residence, Lugano Lake, Switzerland (Mario Botta), 322
Roman domus, 115
roof plan, site plans, 159
rotation, speculative drawing, 307
### INDEX

- S.S. Sergius and Bacchus, Constantinople (Istanbul), Turkey, 150
- Salk Institute of Biological Studies, Meeting House, La Jolla, California (Louis Kahn), 321
- samples per inch (SPI), digital resolution, composition, 346–49
- San Lorenzo Maggiore, Milan, Italy, 319 scale
- building elevation drawings, 165
- building section drawings, 173, 179
- composition, 344
- concept development, diagramming, 336
- floor plans, 155
- people, composition, 364–65
- site plans, 158
- space and depth, 103–5
- speculative drawing, 310
- texture, 61, 62
- scale drawing, pictorial systems, 122–23
- scanning, digital resolution, composition, 346
- schematic diagrams, 314
- Schwartz House, Two Rivers, Wisconsin (Frank Lloyd Wright), 148
- screen, digital resolution, composition, 347
- scribbling technique, tonal value, 45
- Sea Ranch Condominium, Sea Ranch, California (Moore, Lyndon, Turnbull, Whitaker; MLTW), 161, 181, 210
- section, orthographic views, 136
- section cut, 174
- section cut location, 172
- section drawings. See also building section drawings
  - multiview drawings, 170
  - orthographic projection system, 121
- section perspectives, one-point perspective, 258–59
- seeing. See vision
- Seinäjoki, Finland, Theater (Alvar Aalto), 322
- sensory perception, imagination, 7
- sequence, presentation drawing, 379–83
- serendipity, speculative drawing, 298–303
- shade and shadow. See also light and shade transition
  - depth cues, 95
  - multiview drawings, 182–90
  - paraline view, 217–21
  - perspective drawing, 278–80
  - tonal value, 52–95
- shading. See tonal value
- Shaker Ladderback chair, 372
- shape(s)
  - closure, 35
  - defined, 23
  - digital drawing operations, 131
drawing of, 28
  - figure-ground relationship, 25
grouping, 54
  - light, 50–51
  - modeling form, 48–49
  - organization of, 32–33
  - paraline drawings, 194
  - perception of, 24
  - positive and negative forms, 26–27
  - projection, 36–37
  - shot establishment, animation, presentation drawing, 396
  - shot-reverse shot, animation, presentation drawing, 397
  - shot scale, animation, presentation drawing, 395
  - sidelighting, shade and shadow, 53
- sight. See vision
- sighting, 29–31
  - defined, 29
  - devices for, 29
  - techniques, 30–31
- sightline, perspective projection, 224
- sign, diagramming element, 316–17
- similarity categorization, diagramming elements, 317
- Single-family House, Viganello, Switzerland (Mario Botta), 390
  - site
  - concept development, diagramming, 335
  - diagramming concepts, 322
  - site plans, 158–61
  - contour, 160–61
  - depth cues, 159
  - orientation, 158
  - requirements, 158
  - roof plan, 159
  - scale, 158
  - site section drawings, multiview drawings, 181
  - size
  - composition, 344
  - concept development, diagramming, 336
  - presentation drawing, 386
  - size diminution, perspective drawing, 250
  - size perspective, depth cues, 85, 92
  - sketching, visual thinking, 8–9
  - slopes, sighting, 30–31
  - Smith House, Darien, Connecticut (Richard Meier), 376
  - solid line, line weight, 127
  - scale drawing, pictorial systems, 122–23
  - scaling, 29–31
  - side lighting, shade and shadow, 53
  - size perspective, 85
  - texture or linear spacing shift, 94
- site plan, perspective projection, 224
- station point, perspective projection, 224
- station point distance to object, perspective variables, 233
- station point height, perspective variables, 232
- stereotypes, drawing process, 6
- still-life composition
  - light, shade and shadow, 54–55
  - tonal range, 59
- stippling, tonal value, 46
- structural materials, concept development, diagramming, 337
- structure. See form and structure
- structure establishment, space and depth, 100–102
- subdivision
  - digital drawing operations, 130
  - of lines, drawing process, 128
- subtractive forms, 77
- Sultan Hasan Mosque, Cairo, Egypt, 321
- surface line, line weight, 127
- symbols
  - diagramming element, 316–17
  - presentation drawing, 378, 386
- symmetry
  - balance, composition, 354–55
  - layout, presentation drawing, 390
- systems
  - concept development, diagramming, 337
  - diagramming concepts, 323
- Taj Mahal, Tomb of Mumtaz Mahal, Agra, India, 151
tangent line, drawing process, 128
tangram, 37, 516
- terrain, contour lines, site plans, 160–61
INDEX

text, presentation drawing, 388

texture. See also tone and texture
- continuity of outline, depth cues, 84
- representation of, 60–63
- shift in, depth cues, 94

texture perspective
- building elevation drawings, 168
- depth cues, 92

Thaihe Dian, Pavilion of Supreme Harmony in the Forbidden City, Beijing, China, 323

Theater in Seinäjoki, Finland (Alvar Aalto), 322

third-angle projection, orthographic views, 156

30 degree rule, animation, presentation drawing, 397

Thonet Bentwood chair, 372

three-point perspective
- defined, 249
- perspective drawing, 276–77
- projection system, 121

three-quarter lighting, shade and shadow, 53

title, presentation drawing, 388

tonal value, 40–47
- atmospheric perspective, depth cues, 90
- color, 41
- creation of, 42–46
- crosshatching technique, 44
- hatching technique, 43
- scribbling technique, 45
- stippling, 46
- techniques for, 42
- described, 40
- layering of, space and depth, 106–7
- mapping, 56
- patterns, 57
- range, 58–59
- texture, 60–63
- texture perspective, depth cues, 92
- value scale, 47

-tonal value scale, 47

tone and texture, 39–63. See also texture light, 50–51
- modeling form, 48–49
- shade and shadow, 52–55
- tonal value, 40–47

toplitighting, shade and shadow, 53

topography, contour lines, site plans, 160–61

touch, texture, 60–63

trace line, orthographic views, 136

transformation
- digital drawing operations, 131
- speculative drawing, 302

transitions, animation, presentation drawing, 398

transparent view, modeling concepts, diagramming, 351

triangles, method of, depth measurements, perspective drawing, 241

trimetric projection drawing
- orthographic projection system, 121
- paraline drawings, 202

two-point perspective, 261–75
- advantages of, 261
- common (office) method, 262–67
- defined, 249
- grid method, 272–75
- perspective plan method, 268–71
- projection system, 121

typography, presentation drawing, 387–88

unity
- composition, ordering principles, 352
- presentation drawing, 377

Unity Temple, Oak Park, Illinois (Frank Lloyd Wright), 178

University of Pennsylvania, Richards Medical Research Laboratory, Philadelphia (Louis Kahn), 323

value, composition, 360–62

value scale, 47

van Gogh, Vincent, 305

vanishing point (VP)
- one-point perspective, 252
- perspective drawing, 228
- two-point perspective, 263

vanishing trace (VT), perspective geometry, 245

variety, composition, ordering principles, 352

vector images
- cropping and masking, composition, 350
- digital drawing operations, 131
- layout, presentation drawing, 392–93

vehicles, composition, 373

vertical location, depth cues, 86

very light line weight, pictorial systems, 126

view(s)
- angle of, perspective variables, 234
- digital modeling concepts, 330–31

viewfinder, 29–31

viewpoint
- flexibility in, speculative drawing, 306
- presentation drawing, 376

view selection, space and depth, 98–99

vignette, composition, figure-ground relationship, 351

Villa at Vaucluse, France, 156

Villa Garches, Vaucresson, France (Le Corbusier), 378

Villa Giulia, Rome, Italy (Giacomo da Vignola), 181

Villa Strozzi, Museum of Modern Art, Florence, Italy (Richard Meier), 383

vision
- color, 41
- drawing process, 3, 4–6, 13
- subjective nature of, 5, 14
- tonal value, 40