

Index

A

- Absolute language, and client expectations, 67–68
- Accessibility (availability)
 - to clients, 41–42
 - in construction contract administration, 95–96
- Acknowledgement
 - of documentation, 15–16
 - silent, of changes, 20
- Action, in problem solving, 85
- Additional services
 - agreements on, 36
 - policy on, 35
- Aesthetic design. *See* Design
- Affirmation
 - of resolution, 87
 - of work conformance, 121
- Agreements
 - documentation of, 14
 - execution of, 35–36
 - letter, 30
- AIA Code of Ethics and Professional Conduct, on changes, 79
- AIA Documents
 - A101-2007, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, 32, 74
 - A107-2007, Standard Form of Agreement Between Owner and Contractor for a Project of Limited Scope, 160
 - A201-1997, General Conditions of the Contract for Construction, 27, 53, 71, 73–74, 78–79, 90, 114, 116, 120, 123, 134, 143, 157–159, 164, 171, 179–180, 186
 - A201-2007, General Conditions of the Contract for Construction, 23–24, 27, 31–32, 53–54, 71–74, 76–79, 85, 90, 114–116, 120, 123–127, 129, 131, 134, 148, 157–159, 168, 171, 176–177, 180, 186, 215
 - B101-2007, Standard Form of Agreement Between Owner and Architect, 23, 28, 31–32, 68, 71, 73–74, 76, 91
 - B102-2007, 31
 - B103-2007, 31–32, 71
 - B141-1997, 71, 118–119
 - B431-1993, Architect’s Qualification Statement, 45–46
 - B503-2007, Guide for Amendments to AIA Owner-Architect Agreements, 28
 - C141-1997, Standard Form of Agreement Between Architect and Consultant, 187
 - C401-2007, Standard Form of Agreement Between Architect and Consultant, 35, 187
 - and construction contract administration, 92–93
 - contracts, 19
 - G612-2001, Owner’s Instructions to the Architect Regarding the Construction Contract, 167
 - G701, Change Order, 148, 155
 - G701/CMA, 155
 - G702, Application and Certificate for Payment, 27, 124, 175, 177
 - G703, 175
 - G704-2000, Architect’s Certificate of Substantial Completion, 72–73, 90, 150, 179–180, 187
 - G707-1994, Consent of Surety to Final Payment, 187
 - G710-1992, Architect’s Supplemental Instructions, 79, 135, 148
 - G711, Architect’s Field Report, 22, 172
 - G714, Construction Change Directive, 148
 - G728-2004, Request for Information, 94
 - importance of, 129
 - on substitutions, 143
- Allegation, and claim, 7
- American Institute of Architects. *See* AIA
- Apprentice system, 190
- Approvals, documentation of, 14
- Architect(s)
 - and absence of authority, 74–75
 - authority of, 69–80
 - blame on, causes of, 3–4
 - client belief in, 40
 - complaints of, 189–209

- and construction administration, 89–92
- definition of, 211
- documents, not used for construction, 130–138
- identity of, 211–217
- introspection and, 86, 211–249
- powers of, 63–98
- public image of, 212–214
- roles of, 63–69, 138
- and submittal review, 158–159, 161, 165
- and substantial completion, 182
- and team work, 55–61

Architecture

- changes in, 197–202
- lost treasures of, 203–209

Artistry

- drafting methods and, 189–207
- losses in, 203–209
- and technology, 225

Attitude

- and construction administration, 88–98
- and learning from mistakes, 243
- of project manager, 65–66
- risk management as, 2, 5–6

Authority

- absence of, 74–75
- of architect, 69–75
- basis of, 70–74
- in change process, 148–149
- common, 70
- versus consulting, 75
- exclusive, 71–74
- execution of, 70
- sharing, 75–80

Awareness

- and design, 227
- and problem solving, 87–88
- public, of architects, 212–214

B

Barrier systems, for moisture, 232

Beale, Christine, 238

Behavior, of project manager, 65–66

Betterment, 85, 103–113

- definition of, 103, 107
- too much, 111–112

Bidding process, 140–141

Bid runners, 140

Bid shipping, 141

BIM. *See* Building information modeling

Blame, 83

- on architect, 3–4

Brunelleschi, Filippo, 225–226

Budgets

- contract on, 21, 25–26
- drawings and, 193–194

Building exterior walls, 231–241

- basics of, 232–234

- fundamentals of, 236–239

- issues in, 235–236

- window systems and, 234–235

Building information modeling (BIM), 196, 207–208

- and creativity, 201–202

Building type and use, and design, 235–236

C

CAD (computer-aided design)

- and creativity, 201–202

- impact of, 189–197, 207

- and isolation, 191

- versus old technology, 206

- workforce changes and, 219

Care. *See* Standard of care

Cathedral Saint-Pierre de Beauvais, 225–226

CCA. *See* Construction contract

- administration

Certification

- architect's authority and, 72–73

- consultants and, 187

- of contractor's work, 21, 23–24

- definition of, 45–46, 175–176, 184

- literal interpretation of, 184–185

- and nonconforming work, 127–128

- of payment applications, 174–178

- separately contracted consultants and, 51–52

- of substantial completion, 178–188

- withholding, 187

Change(s)

- authority for, 79

- and cost/quality, 149–150

- disagreements on, 150–151

- log of, 152–153

Change orders

- no architect signature on, 32–33

- and nonconforming work, 127

- versus RFIs, 132

- runaway costs on, vicarious approval of, 154–155

- separately contracted consultants and, 51

Change process

- authority in, 148–149

- protective measures in, 152

- risk management in, 147–156

- Change review meetings, 153–154
- Charles de Gaulle Terminal 2E Concourse, 226–227
- Checklists, and learning from mistakes, 245
- Chief draftsman, 190–191, 204
- Claims
 - and betterment, 108–109, 111
 - definition of, 6–7
 - documentation and, 13
 - importance of responding to, 9–10
 - and nonconforming work, 128
 - and perceptions of architects, 215
 - quick response plan for, 7–9
 - relationships after, 11
 - reporting to insurer, 7
 - style of, 116–118
- Client(s), 39–61
 - advocacy for, 68
 - care of, rules of, 10–11
 - and construction contract administration, 95
 - and contracts, 18
 - expectations of, managing, 44–45, 67–68
 - knowledge of, and relationships, 41
 - and learning from mistakes, 245–247
 - maintaining relationships with, 39–44
 - and problem resolution, 86
 - and project manager attitudes, 65–66
 - See also* Owner(s)
- Climate, and building exterior walls, 235
- Commanding, versus consulting, 75
- Common authority, 70
- Communications
 - about nature of architecture, 211–217
 - and client care, 10
 - and client expectations, 46–47
 - and design, 227
 - management of, 5
 - in problem solving, 84
 - on staffing issues, 219
- Compatibility, of exterior wall materials, 236
- Compensation
 - contracts on, 31
 - for discrepancies, 103
 - learning from mistakes in, 246–247
 - substantial completion and, 183
- Competition
 - communication and, 47
 - conceptual design drawings and, 132
- Complete, term, 194
- Completion
 - term, 24, 99–100
 - See also* Substantial completion
- Computer-aided design. *See* CAD
- Concealed work, observation of, 171
- Concept, term, 131
- Conceptual design drawings, benefits of, 132–133
- Condensation, 233
- Conditions
 - atypical, agreements on, 34
 - contracts on, 31–32
- Conferences
 - and construction contract administration, 93–94
 - pre-closeout, 172
 - preconstruction, 52–53, 133
 - preinstallation, 173, 226, 240
 - See also* Meetings
- Construction administration, 88–98
 - preparation for, 92–93
 - proactive involvement in, 92
- Construction contract administration (CCA), 88–98, 213
 - definition of, 89
- Construction drawings, 100
- Construction methods
 - authority for, 74
 - conceptual design drawings and, 133
- Construction phase
 - architect's documents not used for, 130–138
 - discovery of drawing discrepancies in, 101–102
 - drawings in, 193
 - observations during, 113–122, 166–174
- Construction phase services, deletion of, 21, 28–29
- Construction schedule, authority for, 74–75
- Construction Specifications Institute
 - on project review and feedback, 246
 - Substitution Request, 148
- Consultant(s)
 - and certifications, 187
 - documentation and, 13
 - relationships after claim, 11
 - separate, 49–55
 - and workforce issues, 221
- Consultant agreements, policy on, 35
- Continuing education, 220
- Contract(s)
 - accepted, 18–29

AIA Documents, 19
 and architect's authority, 69–71
 and client relationships, 40
 functions of, 30–32
 importance of, 37
 management of, 34–36
 non-standard, responsive actions to, 32–33
 and observation, 167
 of owner and separate consultants, 49–55
 pitfalls in, 19–20
 and substantial completion, 181
 on work conformance, 123–125
 working without, 29–37

Contractors
 and authority, 76–79
 and bidding process, 140–141
 and building exterior walls, 239–241
 certifying work of, 21, 23–24
 and changes, 148
 deliverables, enforcement of, 94
 and different products/systems, 135–136
 and dimensions, 136–137
 documentation and, 13
 failure to complete or correct work,
 186–187
 ideal relationships with, 137–138
 and nonconforming work, 114,
 123–124, 128
 as owners, 227
 and payment certification process,
 174–178
 perceptions of architect, 213–215
 plans, importance of, 133–134, 161
 relationships after claim, 11
 representations by, 177–178
 roles of, 138
 separately contracted, 185
 and subcontractors, 134–135
 and submittals, 100, 157, 160–161
 and substantial completion, 181–182, 184
 supervision by, 120–122
 and team work, 55–61
 warranty, 113–122, 177–178
 work plan, 48, 75, 94, 113, 133–135, 138,
 152, 161, 163, 165, 168, 179, 181, 188,
 218, 239, 241

Control number, 161

Costs
 changes and, 149–150, 154–155
 establishment of, 140

Creativity, CAD and, 201–202

Curtainwall systems, 235

D

Damages
 betterment and, 109–110
 and claim, 7
 drawing discrepancies and, 99–105
 errors and, 103
 liquidated, 185

Dates, on documentation, 16

Deal breakers, 25
 policy on, 35

Decision making
 architect's authority and, 70, 72
 and problem solving, 85

Defective work, de facto approval of,
 115–116. *See also* Nonconforming work

Defense, 9

Delivery
 and client expectations, 48
 and client relationships, 41
 technical, and design quality, 228–229

Delivery times, and workload, 222

Demand, and claim, 7

Design
 architect's authority and, 71
 basics of, 227–230
 challenges and solutions in, 225–226
 drafting methods and, 189–207
 failures in, 226
 original, 224–231
 priorities in, dichotomy of, 224–225
 quality, technical delivery and, 228–229

Design concept
 and construction phase, 131–132
 and drawings, 100
 project buyout and, 139–147

Design development phase, drawings in, 193

Design documents, 100 percent complete,
 21, 24

Design phase completion, owner and, 76

Design professionals, owner's separate
 contracts with, 49–55

Design team, and substantial completion, 186

Details, CAD and, 195

Dimensions, contractor and, 136–137

Discipline, 88–93

Discovery
 of drawing discrepancies, impact of,
 101–102
 timing of, and betterment, 112

Documentation
 acknowledgement of, 15–16
 basics of, 12–17

Documentation (*continued*)
of changes, 152–153
and claims, 13
and construction contract administration, 92–95
and design, 228
and learning from mistakes, 243–245
as management tool, 12–13
of nonconforming work, 151
of problem resolution, 86
purpose and effect of, 191–192
in quick response plan, 9
with separately contracted consultants, 51
of site visits, 170, 172–173
starting, 4
and substantial completion, 181
types of, 14–15
Draftsman, chief, 190–191, 204
Drainable EIFS systems, 234, 238
Drawing discrepancies, 99–105
clarification of, 102
discovery, impact of, 101–102
inherent, 100–101
Drawings
complete, term, 194
conceptual design, benefits of, 132–133
construction, 100
functional use of, 192–193
and learning from mistakes, 244
nostalgia regarding, 189–197
and specifications, 192
working, 192–193
See also Shop drawings

E

Early occupancy, 185–186
Economic issues, and staffing, 218–219
EIFS. *See* Exterior insulation and finish systems
E-mail, 200–201
as documentation, 16
Employee sharing, 221
End dams, 237
Endeavor to guard, 118–119, 168, 213
definition of, 118
Errors and omissions (E&O)
benefiting from, 242–248
and changes, 149
and damages, 103
drawing discrepancies, 99–105
honesty about, 67
and nonconforming work, 125

and problem solving, 83
progress in learning from, 248
recording, generically, 244
repetitive, 242
standard of care and, 108
Exclusive authority, 71–74
Experience
and marketing, 46
and mistakes, 242–248
Experience quotient, upside-down, 190–191, 196, 219
Experts
claims made by, 118
in quick response plan, 8
Express warranty, definition of, 177
Exterior insulation and finish systems (EIFS), 234
basics of, 238–239
Exterior walls. *See* Building exterior walls

F

Fast-track projects, learning from mistakes in, 245–246
Fax (facsimile transmission), 199
Fees
and workload, 222
See also Compensation
Field observation. *See* Observation
Files
and construction contract administration, 93
contract management, 36
Final completion, architect's authority and, 73
Flashing, 232, 236
Flex time, 220
Flying buttresses, 226
Front end loading, 177

G

Gallagher, Claire, 213–214
Generally, term, 119
Go/no go marketing, 222
Gordon, Douglas, ix–x

H

Hancock Tower, 226
Hold-harmless agreements
contracts on, 21, 28
and substitutions, 145
Honesty
and errors, 67
on nonconforming work, 126
and problem solving, 86

Human interaction
 CAD and, 191
 communications technology and, 200–201
Humility, and problem solving, 87–88

I

Identification, in documentation, 16
Implementation, and design, 229–230
Indemnities, contracts on, 21, 28
Informed consent, on EIFS, 238–239
Injury, and claim, 7
Inspections, 113–122, 171–172
 contracts on, 21–23
 and substantial completion, 180–181
 See also Observation; Site visits
Insurance. *See* Professional liability insurance
Integrated project delivery, 37, 146, 192, 201
Interviews, and client expectations, 47
Introspection, 211–249
 and problem solving, 86
Invoices, learning from mistakes in, 246–247
Isolation
 CAD and, 191
 communications technology and, 200–201

J

John Hancock Tower, 226
Johnson, Jerry M., 234–235
Johnson Wax Company building, 224
Journals
 and construction contract administration, 93
 as documentation, 17
 and learning from mistakes, 244

K

Kansas City Hyatt, 226
Kindness, and owner-architect-contractor team, 59

L

Language
 in certification, 184
 and client expectations, 46–48, 67–68
Layers, 206
Layouts, coordination of, contractors and, 134
Leaks, 233–234, 237
Legal counsel, in quick response plan, 7–8
Legal issues
 betterment, 105–113
 responsibility for work conformance, 113–122
 substantial completion and, 182
Lessons learned, 244–245

Letter agreements, 30
 policy on, 35
Levels, 206
Licensing requirements, states and, 46
Liquidated damages, 185

M

Marketing
 risks in, 44–49
 and workload, 222
Masonry, 236–238
MASTERSPEC
 on building layout, 125
 on mockups, 239–241
 on mortar buildup, 237
 not used for construction, 131
 on submittals, 28, 160, 163
 and substitution, 142, 148
Means
 authority for, 74
 conceptual design drawings and, 133
Media management, starting, 4–5
Mediocrity, in design, 224
 avoiding, 230
Meetings
 change review, 153–154
 owner-architect-contractor, 169
 project, and construction contract administration, 93–94
 reports on, documentation of, 14–15
 See also Conferences
Memos, documentation of, 14–15
Mentoring process, 190
 recommendations for, 196–197
Methods
 authority for, 74
 conceptual design drawings and, 133
Mockup reviews, 173, 226
 and building exterior walls, 239–240
Moisture
 condensation of, 233
 exterior wall design and, 231–241
Mortar buildup, 237
Motivation, and owner-architect-contractor team, 58–59

N

Napkins, as documentation, 17
Negligence, 3
Nonconforming work
 acceptance of, authority for, 75
 on building exterior wall, 240–241

Nonconforming work (*continued*)
causes and conditions, 125–126
challenges and risks of, 122–130
concealed, observation of, 171
documentation of, 151
options for, 126
owner and, 78, 126–127
rejection of, contractors and, 77–78
side effects of, 127–128
uncorrected, 186–187
vicarious acceptance of, 154
Notarization, of contractor's signature, 176
Notices, documentation of, 14
Nuisance value, definition of, 9

O

OAC. *See under* Owner-architect-contractor
Observation, 113–122, 166–174
and building exterior walls, 239–241
contracts on, 21
preparation for, 167–168
purpose of, 169–170
separately contracted consultants and, 51
and substantial completion, 180–181
term, 19
See also Site visits
Occupancy, early, 185–186
Omissions. *See* Errors and omissions
100 percent complete design documents,
21, 24
Onerous contracts, 18–29
alternatives to requirements of, 20–21
Oral agreements, 14
Outside contract review
agreements on, 34–35
policy on, 35
Outsourcing, 221–222
Overnight deliveries, 199–200
Owner(s)
and authority, 76, 78–79
and betterment, 110–111
and budget issues in contract, 25
and changes, 148
as contractors, 227
documentation and, 13
and EIFS, 238–239
and meeting reports, 15
and non-standard contracts, 32–34
perceptions of architect, 213–215
relationships after claim, 11
and separate consultants, 49–55
and site visits, 170

and substantial completion, 182, 184
See also Client(s)
Owner-architect agreements
and separately contracted consultants, 53–54
standard, 34–35
Owner-architect-contractor (OAC) meetings,
and site visits, 169
Owner-architect-contractor (OAC) team,
55–61
and authority, 78–79

P

Parties, identification of, contracts on, 30–31
Payment application
review and approval of, contract on, 21,
26–27
separately contracted consultants and, 51–52
Payment certification process, 174–178
PDA, as journal, 17
Perfection, concept of, 3–4
Performance, architect's authority and,
73–74
Performance and payment bond, 119–120
Permeance, of vapor retarders, 233
Personal digital assistant (PDA), as journal,
17
Personal life, 197–202
Phase completion sign-offs, documentation
of, 14
Pin bar, 206
Pisa, Torre Pendente di, 225
Placeholders, 206–207
Plans, contractor's, importance of, 133–134,
161
Pre-closeout conference, 172
Preconstruction conference
on construction documents, 133
and separately contracted consultants,
52–53
Preinstallation conferences, 173, 226, 240
Privity, term, 2
Problem(s)
action plan for, 83–84
and change process, 154–155
closure on, 87
in construction contract administration,
96–97
engaging, 82
knowledge of, 82
in project buyout, 143–146
quick response to, 83
zeroing in on, 81–82

Problem solving, 80–88
 and client relationships, 42
 Product data, definition of, 159
 Professional development, 220
 Professional liability insurance
 claims and, 6–7
 and problem resolution actions, 86
 reporting claims, 7
 and risk management, 3
 Professional life, versus personal, 197–202
 Professional service delivery, risk management
 in, 1–6
 Profit motive, and owner-architect-contractor
 team, 58–59
 Project(s), smooth, owner-architect-contractor
 team and, 55–61
 Project buyout, 139–147
 problems in, 143–146
 substitutions in, 141–143
 Project cost
 changes and, 149–150, 154–155
 establishment of, 140
 Project management
 attitudes and behavior in, 65–66
 definition of, 64
 documentation and, 12–13
 elements of, 64–65
 problem solving in, 80–88
 versus risk management, 63–69
 Project meetings, and construction contract
 administration, 93–94
 Project procedures, for construction contract
 administration, 93
 Project quality, authority for, 78–79
 Project team
 alternatives for, 219–222
 and client relationships, 42–43
 in quick response plan, 8
 resource issues with, 217–223
 and substantial completion, 186
 Promises, and client expectations, 48
 Promotional materials, wording of, 46–47
 Proprietary products, 135–136, 207
 Public image, of architects, 212–214
 Punch list, coordination of, 186

Q

Quality
 authority for, 78–79
 changes and, 149–150
 design, technical delivery and, 228–229
 Quick response plan, 7–9. *See also* Claims

R

Rapidograph, 204–205
 Recommendations, architect's authority and,
 70, 75–80
 Record keeping
 and learning from mistakes, 244
 starting, 4
 See also Documentation
 Recruiting, 221
 Reference book, on mistakes, 245
 Release forms, for site visits, 170
 Reliability, and marketing, 48–49
 Reporting, on site visits, 172–173
 Request for information (RFI)
 versus change orders, 132
 and construction contract administration,
 94–95
 contractors and, 135
 review, deadlines for, unreasonable, 21,
 27–28
 and risk management, 1–2
 Resolution
 affirmation of, 87
 architect's authority and, 74
 with betterment, 109
 of nonconforming work, 128–129
 of problems, 80–88
 Responsibility
 contractors and, 120–122
 for subcontractors, 134–135
 for submittals, 157–158
 for work conformance, 113–122
 Responsiveness
 to claims, 7–9
 to clients, 41–42
 in construction contract administration,
 95–96
 importance of, 9–10
 to non-standard contracts, 32–33
 to problems, 83
 Restaurant napkin, as documentation, 17
 Results, early, and client relationships, 40–41
 RFI. *See* Request for information
 Risk(s)
 communicating about, 216
 and owner-architect-contractor team, 60
 Risk management
 adapting to, 63–64
 applications in, 139–188
 balance of, 5
 basics of, 6–12, 248–249
 in change process, 147–156

Risk management (*continued*)
definition of, 64
elements of, 64–65
essentials of, 99–138
fundamentals of, 1–37
importance of, 1–6
need for, development of, 2–3
starting, 4–5

S

Safety precautions
authority for, 74
for site visits, 170
Saint-Pierre de Beauvais Cathedral, 225–226
Samples, definition of, 159
Santa Maria del Fiore, 225–226
Schedules
authority for, 74–75
and client expectations, 48
drawings and, 193–194
See also Submittal schedule
Schematic design phase, drawings in, 192
Schinnerer, Victor O., 3, 231
Scope of services
contracts on, 31
exceeding, as investment, 43
Self-awareness, and problem solving, 87–88
Self-control, 88–93
Sepia tones, 205–206
Service delivery, risk management in, 1–6
Services
additional, 35–36
construction phase, deletion of,
21, 28–29
scope of, 31, 43
Shop drawings
definition of, 159
not used for construction, 131
preconstruction conference on, 133
purpose of, 157
Sign-offs, documentation of, 14
Silent acknowledgement, of changes, 20
Sincerity, and marketing, 48–49
Site visits, 166–174
and construction contract
administration, 93
objectives of, 168
preparation for, 92–93, 167–168
purpose of, 169–170
in quick response plan, 8
timing of, 168–169
See also Observation

Spearin Doctrine, 60
Specifications
and different products/systems,
135–136, 207
and drawings, 192
Sports facilities, owner-architect-contractor
team and, 57–58
Stability, and client relationships, 42
Staff
alternatives for, 219–222
and client relationships, 42–43
issues with, 217–223
recruiting, 221
treatment of, 219–220
See also Workforce
Standard of care
and architect's authority, 69–70
and blaming architects, 3–4
definition of, 234
on mistakes, 108
observing, 112
and secondary water management, 234
Standard of reasonable care, and
nonconforming work, 114–115
States, new, pursuing work in, 46
Statutes, of limitation and repose, substantial
completion and, 182
Stools, standing on, 205
Stopping work, authority for, 75
Storefront window systems, 235
Stubbs, Stephanie, ix–x
Stucco, 236–238
Subconsultants, in quick response plan, 8–9
Subcontractors
and bidding process, 140–141
contractors and, 134–135
coordination of, 133–134
and submittals, 160
Submittal(s)
contractors and, 100
deadlines for, unreasonable, 21,
27–28
not used for construction, 131, 157
as part of work, 164
preconstruction conference on, 133
purpose of, 157
redefined as contract documents, 33
requirements for, 159–160
responsibility for, 157–158
routing of, 160
types of, 159
work performed without, 164

Submittal process, 156–166
 challenges in, 162–164
 management of, 160–162, 165–166

Submittal review
 architect and, 158–159
 contractors and, 77, 157, 161
 recommendations for, 162

Submittal schedule, 28
 contractors and, 76
 problems with, 162–163

Substantial completion, 178–188
 architect's authority and, 72–73, 90–91
 challenges of, 185–187
 definition of, 179–180
 importance of, 179
 purposes of, 179–180
 risks of, 183–185
 separately contracted consultants
 and, 52
 successful, factors affecting, 188
 withholding, 187

Substitutions
 AIA Documents on, 143
 authority for, 148–149
 forced, 163–164
 problems in, 143–146
 in project buyout, 141–143

Success
 as motivation, and owner-architect-
 contractor team, 59
 originality and, 224
 tracking, 248

Supervision
 contractors and, 120–122
 definition of, 120
 term, 19
 See also Observation

Suppliers, and submittals, 160

T

Tacoma Narrows Bridge, 226

Team work
 and design, 228–229
 owner-architect-contractor, 55–61
 and site visits, 173–174
 See also Project team

Technical review, 228–229
 of walls and windows, 231–241

Technology
 and artistry, 225
 changes in, 203–209
 conceptual design drawings and, 133

 feedback on, and design, 228
 and speed of profession, 197–202

Telephone, 200

Termination, contracts on, 31

Topographic conditions, and building exterior
 walls, 235

Torre Pendente di Pisa, 225

Tracers, 205

Training, for staff, 220

Transmittals, and documentation, 16–17

24-hour rule, 5

U

Unjust enrichment, 105–107
 definition of, 106

V

Value, and client relationships, 41

Value analysis (engineering)
 and changes, 149–150
 negotiation in, 66–67
 and project buyout, 142–143
 and window systems, 235

Vapor drive analysis, 233

Veneer, basics of, 236–238

Verbal communications, and client
 expectations, 47

Verification, and design, 227

Vigilance, and problem solving, 81–82

W

Walls. *See* Building exterior walls

Warranty
 to architect, waiver of, 33
 contractor's, 113–122, 177–178

Water
 characteristics of, 232
 exterior wall design and, 231–241
 secondary management of, 234

Waterproofing, 236–237

Water testing, of mockup, 239–240

Weather barrier, 236–238

Window systems, 231–241
 types of, 234–235

Window wall systems, 235

Work conformance
 causes and conditions, 125–126
 challenges and risks of, 122–130
 invasive testing of, 241
 responsibility for, 113–122
 and substantial completion, 183–184

- Work conformance (*continued*)
 - See also* Nonconforming work
 - work plan, contractor's, 48, 75, 94, 113, 133–135, 138, 152, 161, 163, 165, 168, 179, 181, 188, 218, 239, 241
 - Workforce
 - alternatives for, 219–222
 - changes in, 218–219
 - issues with, 217–223
 - See also* Staff
 - Working drawings
 - functional use of, 192–193
 - and specifications, 192
 - Workload
 - controlling, 222–223
 - refusing, 222–223
 - Wright, Frank Lloyd, 224, 242
 - Written communications, and client expectations, 46–47
 - Wrongdoing, and claim, 7
- Z**
- Zen, and construction administration, 88–98