Subject Index

A
Abrasive cleaning, 31, 38–41, 53, 66
compared with water washing, photograph, 45
of masonry, 99–100
Acidic cleaners, 41–42
Aerosol paints, 14
Alkaline cleaners, 42
Aluminum siding, testing for graffiti removal, 15
Architectural cleaning, 57, 74, 77
Architectural preservation, 71, 77
ASTM standards
C 67-83:17
C 88-83:4
D 1310-82:18
Atmospheric pollutants, 108

B
Bricks, graffiti removal from, 25, 74
effectiveness, 20, 21
table, 21
specifications for, appendix, 79
testing for graffiti removal, 15
table, 17
Bricks, water-soluble salts in, 3
Building cleaning, 83, 96
Building maintenance guidelines, 85
Building management, public buildings, 85
Building materials, test substrates, 15
table, 17
Building restoration, 3, 25, 45, 51
historic structures, 72

C
Chemical cleaning, 31, 54, 62, 66
of historic structures, 71–74, 77
of masonry, 98
specifications, appendix, 78
Cleaning methods, 53, 57
abrasive cleaning, 99
chemical cleaning, 98–99
precleaning, 59, 62
standards, 5
water-safe cleaning (WSC), 58–65
photographs, 59–65
water washing, 98
Cleaning/renovation programs, 25–26, 58, 97
testing, 97–98
Cleaning specifications, 77
appendix, 78
Cleaning standards, for public buildings, 86
Coatings, water-repellent, 97, 100
Color retention test methods for graffiti removal, 17, 19
table, 21
Computer-based energy-dispersive X-ray microanalyzer, 113
Concrete, water-soluble salts in, 3
Consortium (see Marble deterioration)
Contract performance, for historic preservation, 77
Crayon marks, tests for removal, 19

D
Decay
due to sodium sulfate, 4
of masonry, causes of, 28
Desalination, 11, 12
Diagrams, 7, 8

E
Efflorescences
as cause of masonry decay, 3
effects of removal after rain, 5
removal procedures, 8–9, 11, 12
Electron microprobe, exploring marble deterioration, 118, 125, 133
Environmental pollutant data for marble, Schenectady City Hall, 118, 133, 135, 136
Environmental pollution effects, Schenectady City Hall
photographs, 119–124, 126, 127, 139–143, 145, 147, 148
photomicrographs, 128–132, 134, 137

F
Felt-tip pen, test procedures for removing marks, 19

G
German Standard DIN 52111, 4
Graffiti materials, 15, 17
table, 17
Graffiti removal (see also Bricks, graffiti removal from)
from historic structures, 75
specifications for, appendix, 82
paint removers, effectiveness of, 18–21
tables, 18, 21
test methods, 14, 15
for color retention, 17, 19, 21, 22
tables, 21, 22
Granite cleaning
historic structures, 74
specifications for, appendix, 79
Gypsum crystals
crust removal, 108
presence in marble deterioration, 125, 138

H
Heterogeneous oxidation, 108
High-pressure water cleaning, 71
Historic preservation, 3
cleaning, 71, 75, 77, 85
specifications for, appendix, 78
interior cleaning, public buildings, 86, 87
Historic structure reports, for public buildings, 87

I
Interior cleaning, 85–86, 87
Ion chromatography, for marble deterioration investigation, 113, 133

L
Limestone, cleaning historic structures, specifications for, appendix, 79–80
Lipstick, tests for removal, 19
M

Macrostereogrammetry, for measuring stone surface erosion, 153, 155
Macrostereophotography, 157
Marble cleaning
chemical cleaners, 88
conservation/stabilization of Schenectady, New York, City Hall, 110, 146
analysis, 113
c coal fly ash and iron particles, 125
extent of deterioration, 135–136
gypsum crystals, 125
interior marble, 144
particulates, 114–117
photographs, 109, 119–124, 139–143, 147–148
of historic structures
specifications for, appendix, 79
Marble deterioration, 113, 118, 125
Marking materials, removal from buildings, 21
Masonry, 3, 14, 52, 83
acid-resistant/acid-soluble, 46
substrate, 43, 45
contaminants, 74
surface erosion losses on stone, 153
Masonry cleaning, 108, 153
chemical cleaning, 98
of historic structures, 73, 75, 96, 102–103
Minneapolis Grain Exchange, 102–103
procedures and products, 83
standards, 83
water washing, 98
Masonry decay and deterioration, 3, 4–6
causes, 28
Masonry interiors, public buildings, cleaning standards for, 85
Masonry preservation and restoration, 5
cleaning, 14, 28, 31, 43, 49–50, 96, 102–104
cleaning methods, 53, 75–76, 98
test procedures, 47–48, 98
identification of materials, 46
identification of stains, 46–47
Microanalyzer, computer-based
energy-dispersive X-ray, in marble cleaning, 113
Minneapolis Grain Exchange, cleaning experience, 102–103
Mirabilite (Na₂SO₄·10H₂O), role in disintegration of historic structures, 4
Moisture, as cause of decay, 28
Monuments, 3
Mortar repairs, restoration, 108

O

Optical microscope, investigation of marble deterioration, 113, 125
Organic solvent cleaners, 42–43
Oxidation, sulfur dioxide, cause of marble deterioration, 136

P

Paint removal, 75
specifications for, on historic structures, appendix, 81–82
testing for film removal, 47
Paint removers, 14, 66
Pen marks, 14
Performance criteria, of graffiti paint removers, 19, 20, 21
table, 21
Photogrammetry, 154, 157
Poultice cleaning, 66
marble, 88, 90–91
Preservation/restoration (see Masonry; Historic preservation; Public buildings)
Pressure washing, 36–38
Public buildings, cleaning interior masonry, 85–86

R
Renovation programs, 25–26, 58, 97
Restoration mortar repairs, 108
Rock structures, 157

S
Salts, water-soluble
crystal concentrations, tables, 10
desalination removal procedures, 8–9
effects on masonry, 4
Sandblasting, *(see also* Abrasive cleaning), 66
Sandstone cleaning, of historic structures, 74
specifications, appendix, 78
Scanning electron microscope, analysis of marble deterioration, 113, 125
Schenectady, New York, City Hall, conservation/restoration of, 107–149
Sodium sulfate, decay due to, 4
Sphinx, 4–6
table, 6
Stains, surface, identification of, 46–47
Steam cleaning, 31–32, 54

Stereophotography, 154
Stone cleaning, 25, 52, 76, 88–89, 157
Stone durability, 4
Stone surface macrostereogrammetry, for measuring erosion losses, 153
Stress, 4
Suction desalination, 7–8, 11
Sulfuric acid, 108
Sulfur dioxide oxidation, 108

T
Terra cotta, cleaning of, in historic structures, 74
Therandite (Na₂SO₄), phase changes into mirabilite (Na₂SO₄ · 10H₂O), cause of disintegration, 4

W
Water cleaning, 31, 54, 98
compared with abrasive grit blasting, 45
pressure, 55, 71
Waterproofing, 99, 100
Water-repellant coatings, 97, 100–101
Water-safe cleaning (WSC) technology *(see* Cleaning methods)
Water soaking, 34–35, 54
Weathering, 3