

Subject Index

A

- Air change rate
 - basic air change, 67
 - from ventilation systems, 67, 295
 - interzonal air flow, 104
 - residential standards demonstration program, 283
 - user-influenced, 67
 - wind and stack effect, 67
- Air change rates—measurement
 - army buildings in Alaska, 53
 - in test residences, 104
 - methods comparison, 267
- Air exchange, 31
- Air infiltration
 - demonstration program—Pacific northwest, 283
 - detached houses—Sendai, Japan, 249
 - measurement techniques, 5, 295
 - overview, 1
 - systems, 5
- Air Infiltration and Ventilation Centre (AIVC), 295
- Air infiltration rate measurement
 - high-rise apartments, 222
 - methods comparison, 104, 267
 - Turkey, 165
- Air leakage, 1, 132, 146
- Air leakage control, 152
- Air leakage measurements
 - Calgary, Alberta, row houses, 194
 - high-rise apartments, 222
 - UK office buildings, 211
 - Turkey, dwellings, 165
- Air leakage rate, 21, 121, 152
- Air leakage tests
 - manufactured housing in Northwestern United States, 152
- Air pressure measurement
 - micromanometer, 147
- Airflow measurement, 5, 31
- Airtightness measurement
 - detached houses, 249
 - electrically heated houses, 283
 - interzonal, 183
 - measurement techniques, 295

- methods comparison, 104, 267
 - office buildings—UK, 211
 - row houses—Calgary, Alberta, 194
 - single-family building envelope, 132
- Air-to-air heat exchangers, 249
- Alaska
 - air change measurements in army buildings, 53
- Army buildings, Alaska, 53
- ASHRAE Standards 119 (1989)
- ASTM Standards
 - E 741-80: 105
 - E 741-83: 1, 21, 32, 53
 - E 779-81: 146, 147, 153
 - E 779-87: 1, 121, 132
 - E 1186-87: 1
 - E 1258-88: 1
- ASTM STP 719: 1
- STP 904: 1, 153

B

- Blower door, 94
- Blower door testing, 121, 165, 183, 194, 283
- Building air exchange, 77
- Building airflow systems
 - measurement techniques, 31, 183
- Building codes—residential, 93
- Building design and construction
 - airtightness measurement techniques, 295
- Building envelope, airtightness, 211, 223
- Building performance—ventilation, 77

C

- Calgary, Alberta
 - row houses—airtightness survey, 194
- Canadian standards
 - CAN/CGSB-149.10-M86
 - CAN2/CGSB-149.101, 194
- Carbon dioxide (CO₂) concentrations in
 - office buildings, 77
- CO₂ (*See* Carbon dioxide)

Commercial buildings
 airtightness measurements, 211
 Concentration decay
 testing method for airtightness, 249
 Conservation measures, 93
 Constant concentration tracer gas, 104, 105
 Constant tracer flow technique
 air leakage, 21
 Construction techniques for energy
 efficiency, 283
 Crawl space buildings
 fan door testing, 146
 Crawl space air leakage, 146

D

Demonstration program—Pacific
 northwest, 283
 Detached dwelling airtightness
 Sendai, Japan, 248
 Duct work, 146
 Dwellings—Turkey
 air leakage measurements, 165

E

Effective leakage area (ELA), 146, 194
 Electrically heated homes, 94, 121, 152,
 283
 Energy conservation programs—Northwest
 homes, 93, 121
 Energy consumption
 effects of air change rates, 267, 295
 Energy-efficient construction techniques,
 283
 Energy requirements, 1
 Energy savings programs, 152
 Energy use in buildings, 31
 Envelope leakage, 183, 194, 211
 Exterior wall airtightness, 231

F

Fan door testing, 146, 147(fig)
 Fan pressurization testing
 accuracy, 133
 airtightness of new homes, 94
 ASHRAE standard 119 (1989), 132
 ASTM standard E 779–87, 132
 Canadian standard CGSB–149.10-M86,
 132
 crawl space buildings, 146
 detached wood houses, 249
 electrically heated houses, 283
 high-rise apartments, 222
 interzonal air leakage, 183

Poland, 267
 prefield measurement program, 121
 row houses in Calgary, Alberta
 UK office buildings, 211
 Field studies
 northwest residential infiltration
 survey(NORIS), 94, 121
 residential building leakage, 132

G

German standards
 DIN 4701, 165

H

Halocarbon system—tracer gas, 104
 Heat exchangers, 249
 Heating load calculations, 165
 Heating load in residential buildings, 5
 Heating systems
 detached wood houses, 249
 manufactured housing, 152, 153
 High-rise apartments
 air leakage measurement, 222
 House doctoring, 152
 HUD-code manufactured housing
 air leakage characteristics, 152

I

Indoor radon levels, 146
 Indoor air quality, 31, 77, 93–94, 249
 (*See also* Airtightness, Air infiltration)
 Indoor air temperatures, 165
 Infiltration, air
 army buildings, Alaska, 53
 electrically heated houses, 283
 interzonal, 183
 measurement, 31, 183
 multifamily buildings, 5
 office buildings, 77
 overview, 1
 test residences, 104, 121
 wall airtightness, 231
 Interzonal airflows, 104, 295
 Interzonal air leakage, 183
 Inverse flow resistance, 183
 Investigation (*See* Testing)

J

Japan, Sendai
 airtightness of detached houses, 249

L

- Leakage—air (*See* Air leakage)
- Leakage characteristics
 - crawl space, 146
- Leakage measurement, 132, 211

M

- Manufactured housing—air leakage tests
 - northwestern United States, 152
- Masonry deterioration
 - air leakage effects in high-rise apartments, 222
- Mass spectrometer, 5
- Measurement equipment
 - air change, 67, 68, 104
- Measurement techniques
 - airtightness
 - building design and construction, 295
 - comparison, 267
 - detached wood houses, 249
 - exterior wall, 231
 - high-rise apartments, 222
 - interzonal air leakage, 183
 - multizone simulation program, 183
 - office building ventilation, 77
 - overview, 2
 - office buildings—UK, 211
 - tracer gas system, 5, 31
- Methods comparison, 104, 267
- Micromanometer
 - measurement of air pressure, 147
- Model conservation standards (MCS), 93, 283
- MOVECOMP
 - multizone infiltration and ventilation simulation program, 183
- Multifamily dwellings
 - air filtration studies, 5
- Multiple zones, 5, 31, 183
- Multistory buildings
 - airtightness measurement, 211
- Multitracer gas systems, 5
- Multizone buildings, 184

N

- Nonresidential building
 - airtightness measurements, 211
- NORIS (*See* Northwest Residential Infiltration Survey)
- Northwest power act of 1980, 283
- Northwest Residential Infiltration Survey (NORIS), 2, 93–103, 121

- Numerical calculation
 - constant tracer flow technique, 21

O

- Occupant habits
 - effect on air change rates, 67
- Office buildings
 - airtightness measurements
 - high-rise exterior walls, 231
 - United Kingdom, 211

P

- Party wall leakage, 194, 222
- Passive technique
 - air leakage measurement, 21
- Perfluorocarbon test—air exchange rate, 94, 283
- Perfluorocarbon tracer equipment, 93
- Perfluorocarbon tracer systems, 5, 54, 104
- Poland
 - airtightness testing, 267
- Pressurization measurement techniques
 - detached houses, Poland, 267
 - methods comparison for airtightness, 267
 - overview, 2
 - residential buildings, 132
 - UK office buildings, 211
- Pulse tracer techniques, 31

R

- Radon levels
 - in crawl space houses, 146
- Residential building codes, 93
- Residential buildings
 - indoor air movement
 - electrically heated houses, 283
 - test methods comparison, 104
 - wind effects, 132
- Residential infiltration survey, 121
- Residential standards demonstration program, 94
- Row houses, airtightness
 - Calgary, Alberta, 194

S

- Sendai, Japan
 - airtightness of detached houses, 249
- Simulation, 183
- Single-family housing stock
 - electrically heated, 152
- Stack effect, 231

Standards (*See* ASHRAE, ASTM, CANADA, GERMAN)

T

- Tall buildings, 231
(*See also* High-rise)
- Test methods for airtightness
 - blower door technique, 153
 - exterior walls of tall office buildings, 231
 - Turkey, 166
- Test sites
 - Hibben apartments, Princeton, N.J., 5
- Testing
 - air leakage
 - detached wood houses, 249
 - in manufactured housing, 152
 - in UK office buildings, 211
 - methods comparison, 104, 267
 - envelope leakage, UK office buildings, 211
 - fan doors, 146
 - pressurization methods comparison, 267
- Tightness tests
 - methods comparison, 267
 - overview, 2
 - Poland, 267
- Tracer gas dilution technique, 53, 104, 105
- Tracer gas measurement
 - airflow rates
 - constant tracer flow technique, 21
 - detached wood houses, 249
 - electrically heated houses, 283
 - high-rise apartments, 222
 - in two test residences, 104
 - multifamily building, 5
 - Poland, 267
 - pulse tracer technique, 31
 - wind and stack effect, 67
 - Alaska army buildings—air change rates, 53
 - constant concentration technique, 53

- constant emission technique, 53
- dilution technique, 53
- office building ventilation, 77
- Training workshop, 121
- Tunnel formwork technology, Turkey, 166
- Turkey—dwellings
 - air leakage measurements, 165

U

- United Kingdom office buildings
 - airtightness measurements, 211

V

- Ventilation
 - air change, 67
 - Alaska army buildings, 53
 - building design and construction, 295
 - detached wood houses, 249
 - electrically heated houses, 284
 - fan pressurization comparative test, 121
 - multifamily buildings, 5
 - multizone simulation program (MOVECOMP), 183
 - office buildings, 77, 211
 - overview, 1
 - Pacific Northwest—new homes, 93
 - pulse tracer techniques, 31
- Ventilation rate—measurement
 - methods comparison, 267

W

- Wall air leakage
 - high-rise apartments, 222
 - high-rise office buildings, 231
- Weatherization, 1
- Wind—air leakage effects, 67, 132, 183, 231, 295
- Wood houses, airtightness, 249