

IAQ and ASHRAE 62.1-2004

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IAQ and ASHRAE 62.1

- ✓ What do we want our Buildings to be like?
 - Good indoor environment
 - Good IAQ
 - Good lighting, temp, humidity
 - Durable and Reliable
 - Low operating costs
 - Low capital costs



Alberta Code situation

- ✓ New code expected in effect fall 2007
- ✓ Existing code does not embrace changes to ASHRAE since code put in place.
- ✓ ASHRAE 62.1 – 2004 not yet in effect
- ✓ Good practice, but not mandatory
 - What is it supposed to do?



ASHRAE 62.1-2004

- ✓ Purpose is to:
- ✓ “specify minimum ventilation rates and indoor air quality that will be acceptable to human occupants, and will minimize the potential for adverse health effects”



ASHRAE 62.1 - 2004

- ✓ Allows IAQ calc procedure
- ✓ Allows a Ventilation Rate procedure
 - Makes a few requirements for design, documentation, maintenance, and operation
- ✓ Allows for reducing minimum ventilation in some situations
- ✓ Accepts that outdoor air may not be good enough by itself.



ASHRAE 62.1 – 2004

- ✓ Makes Maintenance requirements
- ✓ Sets frequencies on some things
- ✓ 2000 cfm and above
- ✓ Silent on RTUs under 2000 cfm



Ventilation effectiveness

- ✓ Looks at type of systems
- ✓ Incorporates air movement
- ✓ MIGHT eliminate some stagnant spots that cause mold and mildew accumulation



Trends in Design

- ✓ DOAS direct outdoor air systems
- ✓ Allows for heat recovery,
- ✓ Minimum outdoor air
- ✓ Good distribution



Transfer Air

- ✓ Classes of air
- ✓ Some classes can be cleaned/upgraded
- ✓ Some cannot



Commercial building energy use

- ✓ From NRCan and Stats Can 2004
- ✓ Alberta Offices
 - Typical 1.61 GJ/m²-yr
 - Better 1.1 GJ/m²-yr
 - Best 0.8 GJ/m²-yr



Referenced CO2 stds

- ✓ For Canada, 3500 ppm max.
- ✓ Discussion of O2 depletion vs CO2 accumulation



Overall result

- ✓ Less outdoor air required,
- ✓ Makes allowances for less polluting environments
- ✓ Makes allowances for fluctuating occupancies
- ✓ Makes allowances for upgrading air
- ✓ Makes allowances for sensing air quality and reducing flows as long as quality maintained/improved.



Conclusions

- ✓ We can design to use less energy at the same quality
- ✓ We can get better air quality with same energy

