



# Secondhand Smoke in Apartment Buildings:

## A Summary of Minnesota Research

In 2001, the Center for Energy and Environment conducted research regarding secondhand smoke in rental apartment buildings. This project included interviews with apartment owners, a survey of Minnesota renters, legal research, and measurements of the movement of air between units in apartment buildings.

### Renters Want Smoke-Free Housing.

- Almost 50% of Minnesota renters say that secondhand smoke gets into their apartment from somewhere else in the building. Of these, over one-third say that smoke bothers them “a lot” or “so much I’m thinking of moving.”
- Households with children, very poor households, non-senior households, and households in older buildings report more frequent secondhand smoke transfer into their apartment unit.
- Despite being bothered by smoke, renters are reluctant to complain about the problem. Only 17% of those affected by smoke coming into their unit told the landlord about their situation.
- Nearly 55% of renters would be “very likely” to choose a smoke-free building over a smoking-permitted building if other amenities were equal.
- Almost 50% of renters are “extremely” or “very” interested in living in a smoke-free building.
- Renters are willing to make some sacrifices to live in a smoke-free building:
  - Over 30% of renters would be willing to pay more rent per month.
  - Renters would be willing to travel farther to work, a bus line, and to parks or lakes.
  - Some renters would be willing to live in an older building, live without a dishwasher, live in a building with less security, or live in an apartment unit with less space.



### Owners with Smoking-Permitted Buildings Receive Complaints About Smoke.

- Owners say that secondhand smoke is the second most common source of objectionable air moving into individual apartment units from somewhere else in the building (second only to food odors).
- Over 50% of owners say that at least a few of their buildings experience secondhand smoke movement on a regular basis. Owners also report that smoke transfer can some times be a factor in a potential tenant’s decision whether to rent the unit.
- More than half of owners think that there is a viable market for smoke-free buildings.

### The Experience of Owners with Smoke-Free Buildings is Positive.

- Smoke-free policies have been adopted in both market-rate housing and publicly-assisted housing.
- Many owners see a decrease or no effect in turnover, vacancy rates, and staff time to manage smoke-free buildings. Owners also report less cleaning time, less leasing time, and fewer tenant complaints in smoke-free buildings.
- About 95% of owners surveyed were “very likely” to continue offering smoke-free buildings.



### Smoke-Free Policies are Legal.

- Landlords may include use restrictions, such as a no-use-of-tobacco restriction, in a lease.
- The U.S. Department of Housing and Urban Development (HUD) has also supported the right of landlords to include smoking restrictions in leases for federally-subsidized housing.
- Landlords that permit smoking may face lawsuits where tenants seek to terminate their lease or hold the landlord responsible for failing to prevent another tenant’s smoke from entering their unit. Landlords who choose to offer smoke-free buildings may reduce their risks of lawsuits.
- The act of smoking and being a smoker is not a disability and is not a protected status under civil rights laws.
- A sample smoke-free lease addendum can be found on the Live Smoke Free web site, [www.mnsmokefreehousing.org](http://www.mnsmokefreehousing.org).

## Secondhand Smoke Movement is Difficult to Reduce and Virtually Impossible to Eliminate.

- Measurements of air movement were conducted using passive perfluorocarbon tracer gas between units before and after air sealing and ventilation treatments.
- After testing the causes of air transfer, air leaks in the building structure were sealed and the ventilation systems upgraded. The tests were repeated to determine the effect of the air sealing and ventilation improvements.
- This project produced some of the most extensive multiple fan measurements of inter-apartment air leakage and multiple tracer gas measurements of inter-apartment air transfer. It also developed a new metric of “effective contaminant transfer” which is used to define the magnitude of the transfer of a contaminant source to the monitored location.



### How Does Air Move Through an Apartment?

- An apartment is one building divided into many units. There are often many spaces between walls, floors, and ceilings, as well as gaps around pipes, electrical conduits, and other structural devices. Air—and secondhand smoke—can travel through these openings and into other units in the building.
- Smoke can travel into a unit from the hallway, windows, air leaks from other apartments, and bathroom or kitchen fans.
- Some openings are easy to see and may be patched. Other openings may be very small or hidden and are not easily accessible for fixing.
- The path smoke takes through a building is unpredictable. Generally, it will move into units above the source of the smoke. However, this research also shows that smoke may move into adjacent units on the same floor or even into units below.
- Tests show considerable air movement from one unit to another in apartment buildings.



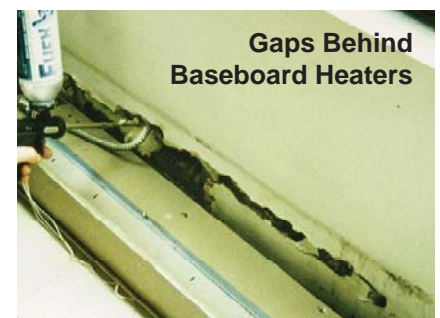
### Can Openings Between Units be Sealed?

- Treating a building to prevent the movement of smoke is time consuming, disruptive to tenants, and expensive.
- The average cost to seal a unit to reduce secondhand smoke leakage was about \$700 per unit.
- Sealing the air leaks was not enough to eliminate the secondhand smoke problem completely.



### Does Improving Ventilation Help the Problem?

- Mechanical Ventilation Observations:
  - Ventilation is often provided only by tenant-operated bath fans.
  - Many bath fans are not maintained and are better noise-generators than air movers, even when they are new.
  - Apartment exhaust flows are rarely balanced.
- Over 80% of tenants with pre-existing secondhand smoke problems indicated that the problem was less frequent and less severe after treatments.



### Conclusions About Air Transfer Research

- Sealing and ventilation treatments were helpful but were expensive and did not fully eliminate the problem.
- Treating problems in one unit did not solve the transfer of secondhand smoke through the rest of the building.

The Center for Energy and Environment is an independent nonprofit organization in Minnesota that promotes the responsible and efficient use of natural and economic resources. This project, “Clean Indoor Air in Apartments — Researching Effective Strategies,” was funded in part by ClearWay Minnesota. **Full copies of the report are available at [www.mncee.org](http://www.mncee.org).**



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