



# ASHRAE 62.2: *A Key User of Filtration*

Max Sherman

Lawrence Berkeley National Lab

62.2 Chair Emeritus



**NAFA**  
National Air  
Filtration  
Association

NAFA 2017 Technical Seminar

Louisville, Kentucky

April 4-6



# PURPOSE OF 62.2

*“This standard defines the roles of and minimum requirements for mechanical and natural ventilation systems and the building envelope intended to provide acceptable indoor air quality in low-rise residential buildings.”*

- Ventilation Systems
- Sources
- Envelope



**NAFA**  
National Air  
Filtration  
Association



# SCOPE OF STANDARD 62.2

- Single-family and multifamily dwelling units
- Chemical, physical and biological contaminants
- Not thermal comfort
- Caveats:
  - Diversity of sources & susceptibilities
  - Non IAQ perceptions
  - Poor outdoor air
  - Improper O&M
  - High Polluting Events



**NAFA**  
National Air  
Filtration  
Association

NAFA 2017 Technical Seminar

| Louisville, Kentucky

| April 4-6





# COMPLIANCE

- Whole-House Mechanical Ventilation
- Exhaust fans in Kitchens and Baths
- Windows in Most Rooms
- Some Source Control
- “Good” Equipment



**NAFA**  
National Air  
Filtration  
Association

NAFA 2017 Technical Seminar

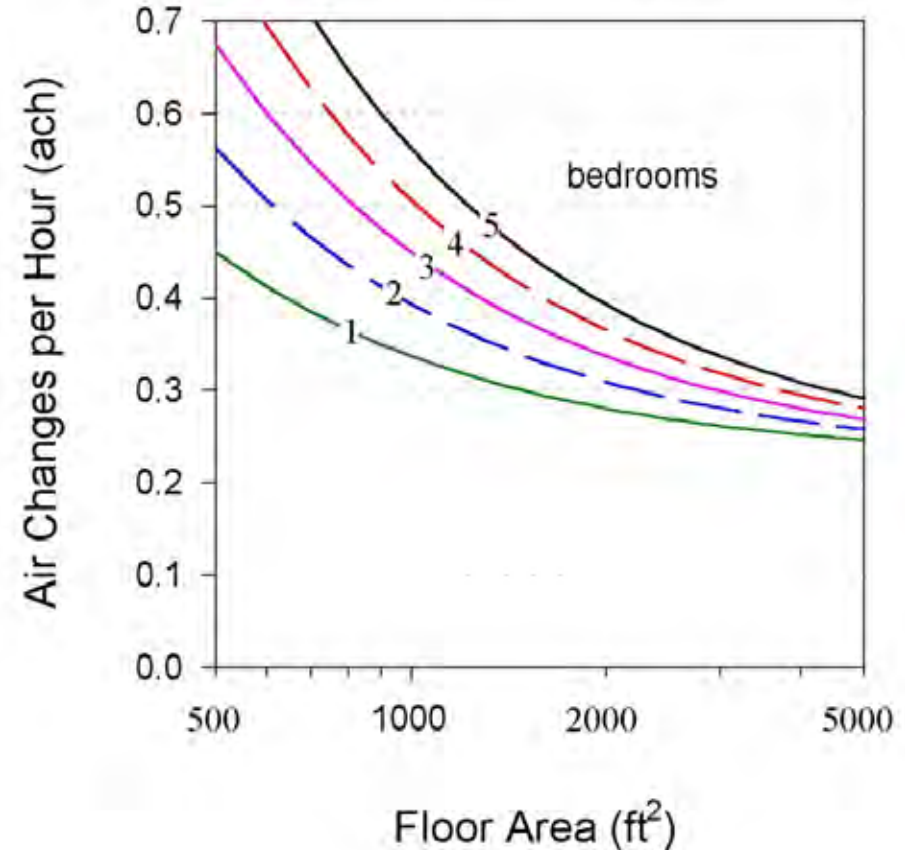
| Louisville, Kentucky

| April 4-6

# OUTDOOR AIR TARGET

- Building+People
  - 3 cfm/100 ft<sup>2</sup>. (15 l/s/100 m<sup>2</sup>.)
  - + 7.5 cfm/person (3.5 l/s/person)
  - Count Bedrooms
- Compare w/0.35 ACH from 62-89 or 15cfm/p (7.5l/s/p)

ASHRAE 62.2P  
VENTILATION AIR CHANGE REQUIREMENTS



**NAFA**  
National Air  
Filtration  
Association

# What Does 62.2 Say About Filtration?

1. To protect equipment from becoming dirty (Mandatory)
  - Mostly to protect from becoming a contaminant source
  - Also for performance of equipment
2. To protect people (Optional)
  - Brand new since 2016 publication
  - Allows rate reduction
  - “Addendum k”

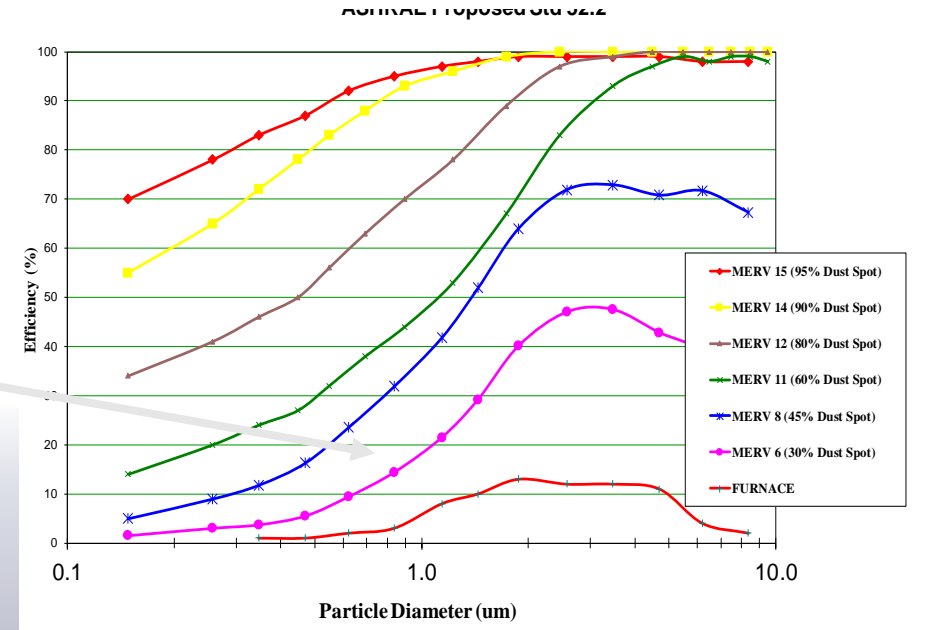


**NAFA**  
National Air  
Filtration  
Association



# Mandatory PARTICLE FILTRATION

- On Ducts > 10 ft.
- 60% for 3 micron
  - MERV 6
- Primarily to Keep Equipment Clean
  - System as Source
- Pressure Concerns
- Updating now



**NAFA**  
National Air  
Filtration  
Association

# Filtration For Health (Section 4.1.4)

- Uses a CADR-like approach
  - Minimum flow through rated filter
- Health impacts linked to PM2.5
  - 52.2 and 980 don't provide PM2.5 efficiency
    - both are allowed but 62.2 had to guess PM2.5 efficiency
- Can reduce ventilation 20% with compliance
- Uses PM2.5 removal efficiencies



**NAFA**  
National Air  
Filtration  
Association



# MERV To PM 2.5 Efficiency?!?

MERV	PM2.5 Removal Efficiency
11	35%
12	50%
13	70%
14	85%
15	90%
16	95%

# What Standard 62 Needs from You

- Filters rated with a PM 2.5 efficiency
  - ISO 16890 instead of ASHRAE or AHRI?
- And then later....
  - PM 1 ratings once the health data is better
- 62.2 does not want to be in the filter rating business



**NAFA**  
National Air  
Filtration  
Association

NAFA 2017 Technical Seminar

| Louisville, Kentucky

| April 4-6

# Questions?

Or do you want to hear more about 62.2?



**NAFA**  
National Air  
Filtration  
Association

NAFA 2017 Technical Seminar

| Louisville, Kentucky

| April 4-6





# LOCAL VENTILATION

- Intended to Exhaust Contaminants
- For Rooms with Known Sources
  - [Kitchen, Bathroom](#)
- Normally Requires Exhaust Fan
  - Intermittent Preferred
- Also Rooms Have [Natural Ventilation](#)



**NAFA**  
National Air  
Filtration  
Association

NAFA 2017 Technical Seminar

| Louisville, Kentucky

| April 4-6



# SOURCE REQUIREMENTS

- Clothes Dryers: Exhausted to Outside
- Vented Combustion Appliances:
  - Not Allowed in Conditioned Space
    - When too much exhaust
    - Unless Exhaust Fans Compensated
- Air Handlers in Garages Must Meet Tightness Spec.
- Particle Filtration (only for system)



**NAFA**  
National Air  
Filtration  
Association

NAFA 2017 Technical Seminar

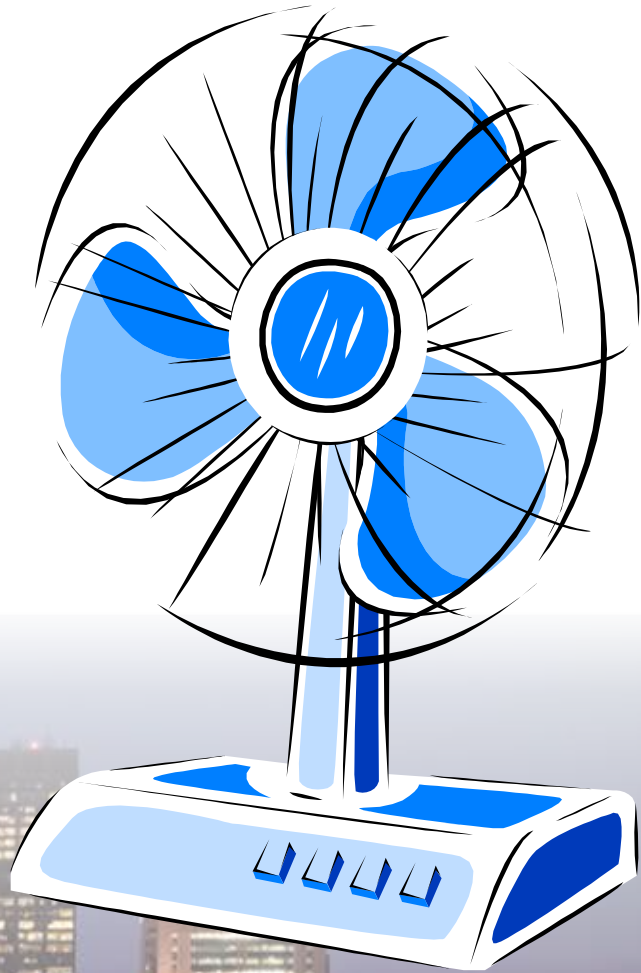
| Louisville, Kentucky

| April 4-6



# AIR MOVING EQUIPMENT

- Must be Rated for Continuous Use
- Must Deliver Air Flow
- Dampers in Multi-family
- Control System
- Must be Quiet
  - 1 Sone (continuous)
  - 3 Sone (intermittent)
  - Downdraft kitchen exhaust is “special”



**NAFA**  
National Air  
Filtration  
Association



# Key Addenda to 62.2-2016

- Filtration Trade-off (*approved*)
  - Rate reduction for better filtration
- Infiltration Superposition (*approved*)
  - Removes *free pass* for unbalanced fans
- Unvented Combustion Appliances
  - Determines if/when acceptable
  - Going to 1<sup>st</sup> public review



**NAFA**  
National Air  
Filtration  
Association