NATURAL & MECHANICAL VENTILATION

FNNHC 2017

WHAT IS VENTILATION??

IS THE PROCESS BY WHICH ‘CLEAN’ AIR IS INTENTIONALLY PROVIDED TO A SPACE AND STALE AIR IS REMOVED

WHY DO WE NEED TO VENTILATE HOMES?

WE ALL 'FEEL' BETTER WHEN WE ARE BREATHING CLEAN AIR

REMOVE INDOOR POLLUTANTS, INDOOR CHEMICALS, MATERIAL OFF GASSING, ALLERGENS & MOISTURE

WHY DO WE NEED TO VENTILATE HOMES?

HOUSES ARE NOW BUILT TIGHTER

HOUSES AREN'T AS LEAKY OR 'BREATH' AS THEY USED TO

WHY DO WE NEED TO VENTILATE HOMES?

A good time to get a sense of your indoor air quality is when you enter your house, before you get accustomed to the indoor air. Do you notice residual cooking odours, smelly garbage or even a musty smell from mould? It should smell fresh and neutral.

THIS IS ESPECIALLY IMPORTANT FOR NEW HOMES

NEW BUILDING MATERIALS CONTAIN EXCESS MOISTURE & VOLITILE ORGANIC COMPOUNDS (VOC)

NEW FURNITURE & GOODS MAY CONTAIN VOC'S THAT CAN OFF GAS

WHEN TO VENTILATE

SWEATY WINDOWS

Condensation is formed when warm moist air comes in contact with cooler dry air.

HOW DO WE VENTILATE HOMES?

NATURAL VENTILATION

PROS

- DOESN'T COST ANYTHING
- NO MAINTENANCE
- LOWER CONSTRUCTION COSTS
- VERY SIMPLE

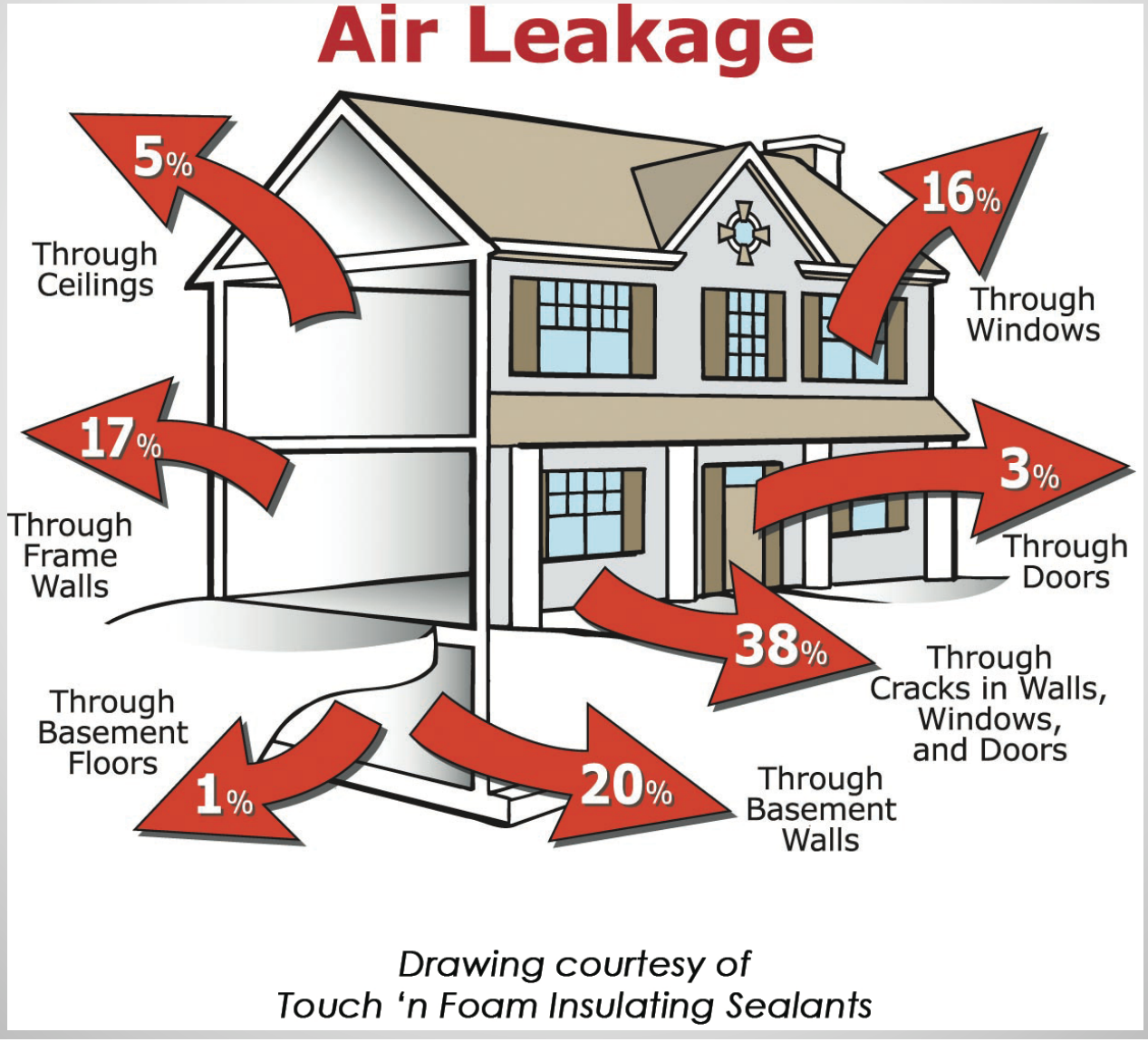
CONS

- ENERGY INEFFICIENT
- 'LEAKS' CAN CAUSE DAMAGE

JUST USING NATURAL VENTILATION

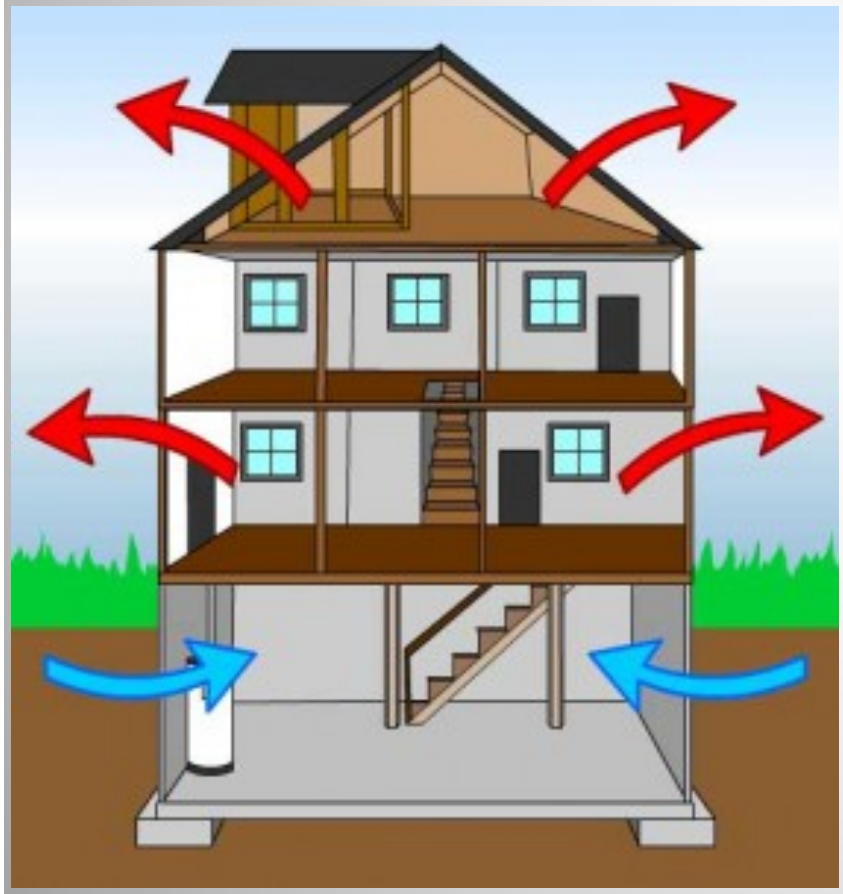
REQUIRE MINIMUM AREA OF OPENINGS TO EXTERIOR IN ROOMS, BASMENTS & CRAWLSPACES IN ORDER TO PROPERLY VENTILATE

NATURAL VENTILATION



Drawing courtesy of
Touch 'n Foam Insulating Sealants

STACK EFFECT



WARM AIR IS LIGHTER AND RISES. THE FLOW OF AIR LEAVING THE TOP DRAWS IN COLD AIR FROM LEAKS IN THE BOTTOM

EXHAUST ONLY
BATH & KITCHEN FANS

PROS

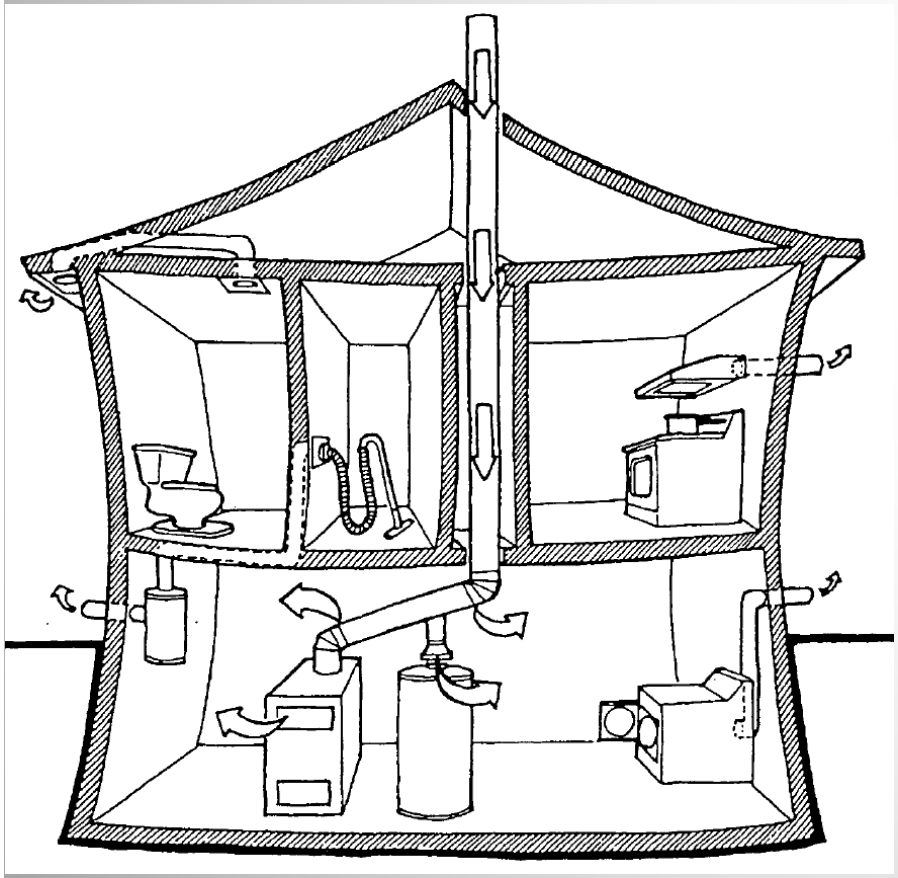
- INEXPENSIVE
- EASY INSTALLATION
- SIMPLE

CONS

- DEPRESSURIZATION
- RELYING ON LEAKS IN THE HOUSE
- NOT ENOUGH VENTILATION

EXHAUST ONLY

DEPRESSURIZATION



BACKDRAFTING OF COMBUSTION APPLIANCES

GAS, WOOD STOVES

CHOOSING A BATH FAN

- IS PROPERLY SIZED: NOT TOO WIMPY NOR TO POWERFUL
- IS ENERGY EFFICIENT
- IS QUIET < 2.5 SONES

TYPICAL BATH FAN

$40 - $300

20W – 60W

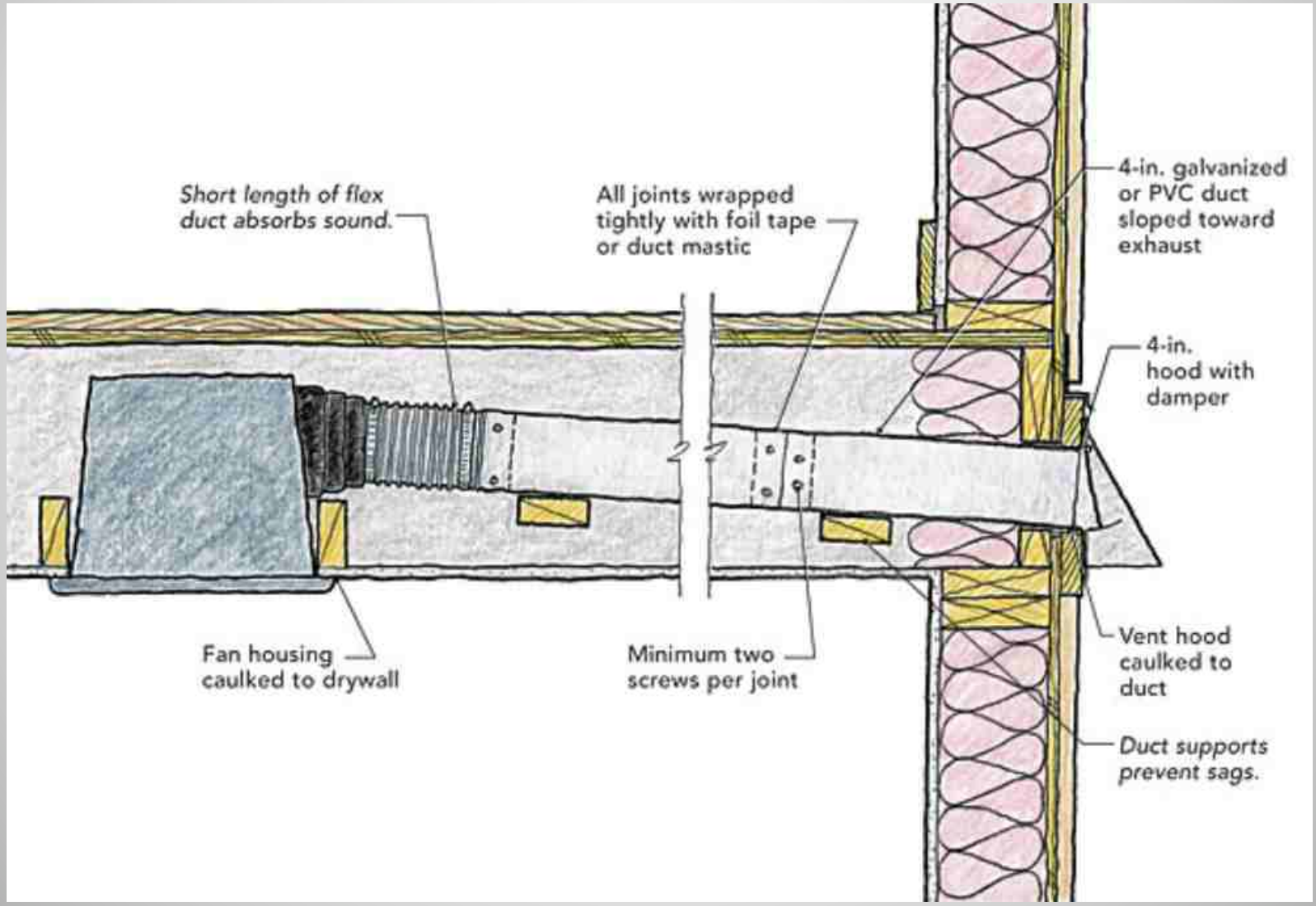
0.3 – 6 SONES

SINGLE OR DUAL SPEEDS

BATH FAN INSTALLATION

- IDEALLY DUCTED TO GABLE END
  - KEEP DUCT RUNS SHORT
  - AVOID THROUGH ROOF
  - DO NOT VENT TO SOFFIT
- SEAL THE UNIT TO DRYWALL
- KEEP AWAY FROM ATTIC VENTS

BATH FAN INSTALLATION



BATH FAN MAINTENANCE

- TURN OFF THE POWER!
- WASH THE GRILLE WITH YOUR DISHES
- VACUUM THE INTERIOR
- PUT THE GRILLE BACK ON
- 1-2 TIMES A YEAR

TYPICAL KITCHEN EXHAUST

$90 - $2000

30W – 60W FAN

MIN. 40W BULB

0.3 – 4 SONES

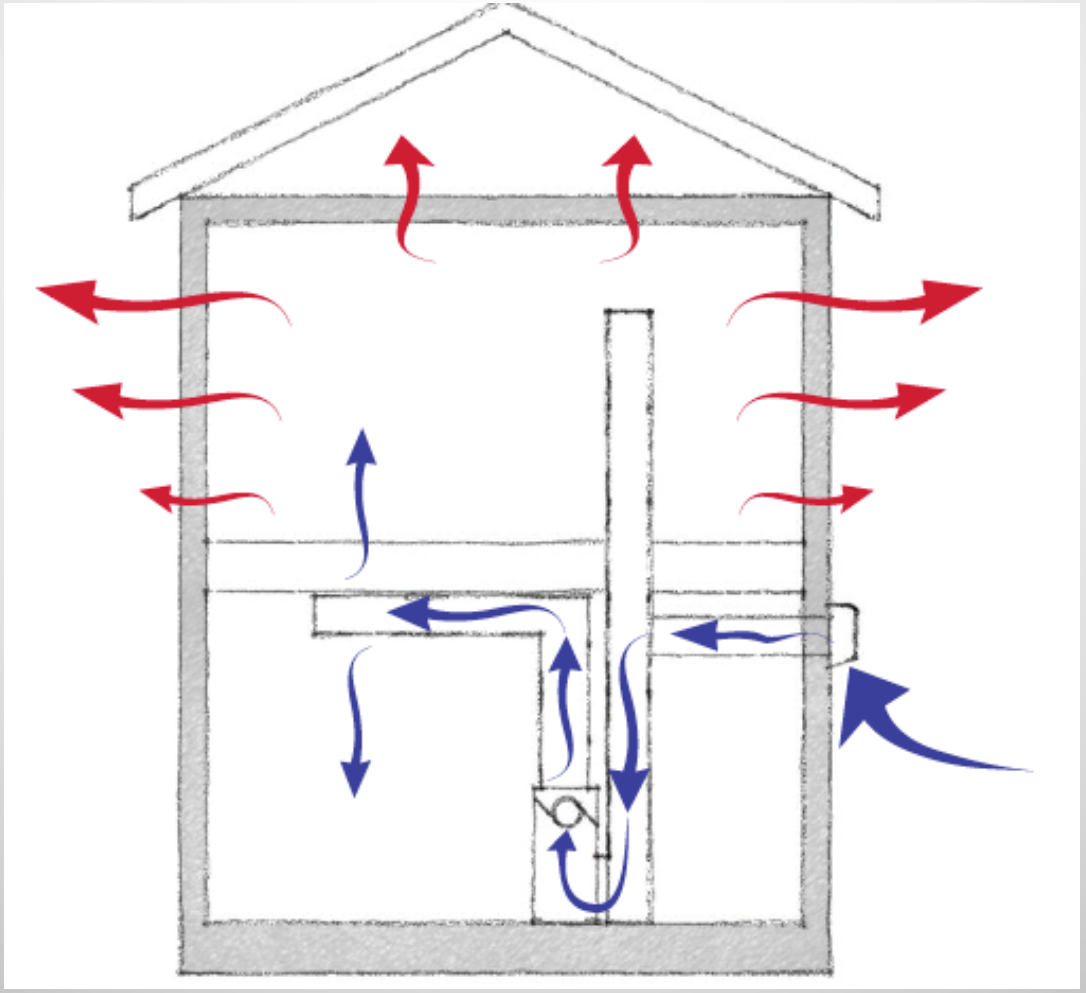
KITCHEN FAN INSTALLATION

- IDEALLY DUCTED TO GABLE END
  - KEEP DUCT RUNS SHORT
  - AVOID THROUGH ROOF
  - DO NOT VENT TO SOFFIT

KITCHEN FAN MAINTENANCE

- WASH THE METAL FILTER WITH YOUR DISHES
- VACUUM THE INTERIOR
- 1-2 TIMES A YEAR

SUPPLY ONLY CENTRAL FAN



SUPPLY ONLY CENTRAL FAN

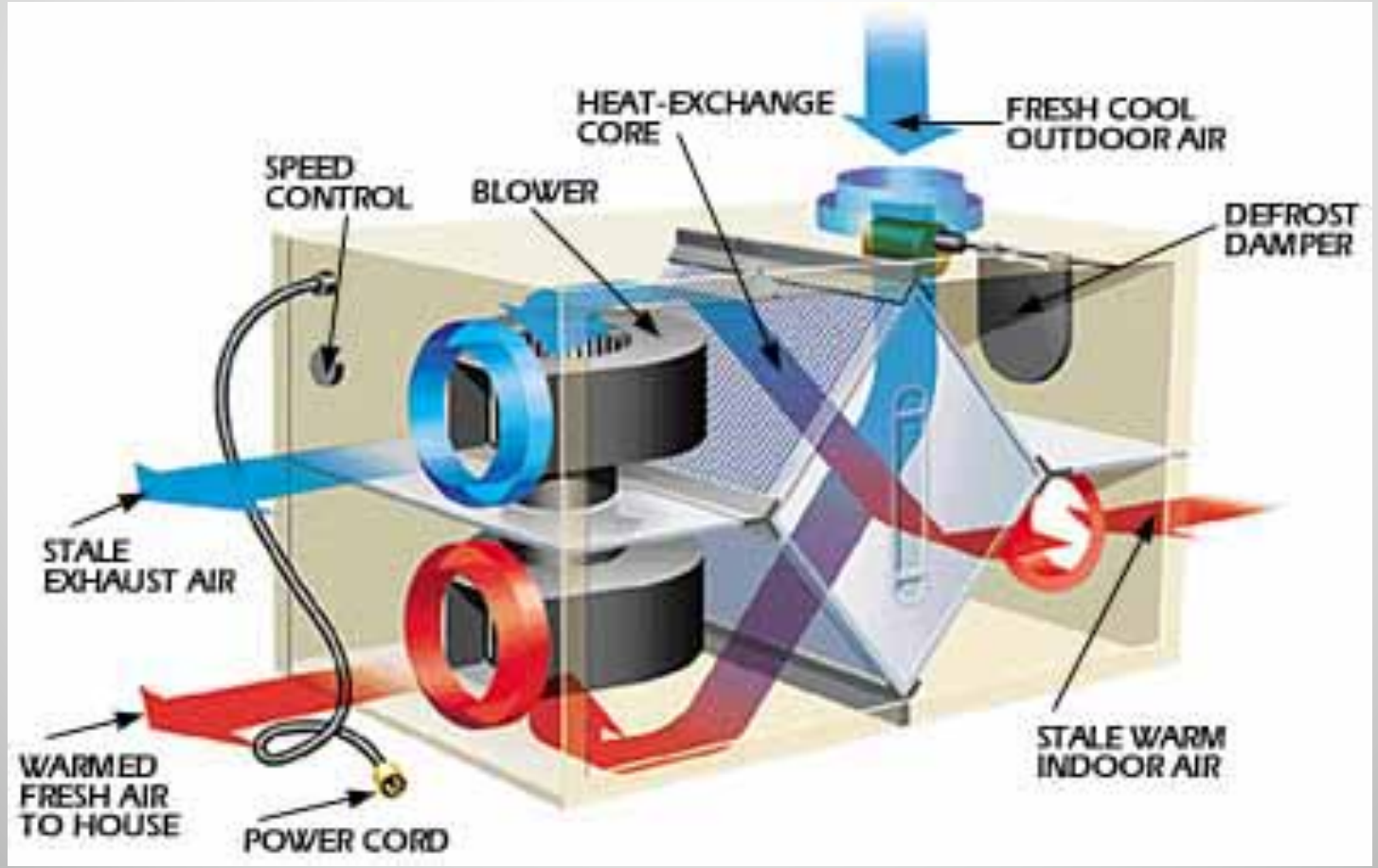
PROS

- INEXPENSIVE
- EASY INSTALLATION
- SIMPLE
- PUSHES VOCs OUT

CONS

- PRESSURIZATION
- RELYING ON LEAKS IN THE HOUSE
- HOT MOIST AIR IN WALL CAVITY

HEAT RECOVERY VENTILATION (HRV)



HEAT RECOVERY VENTILATION

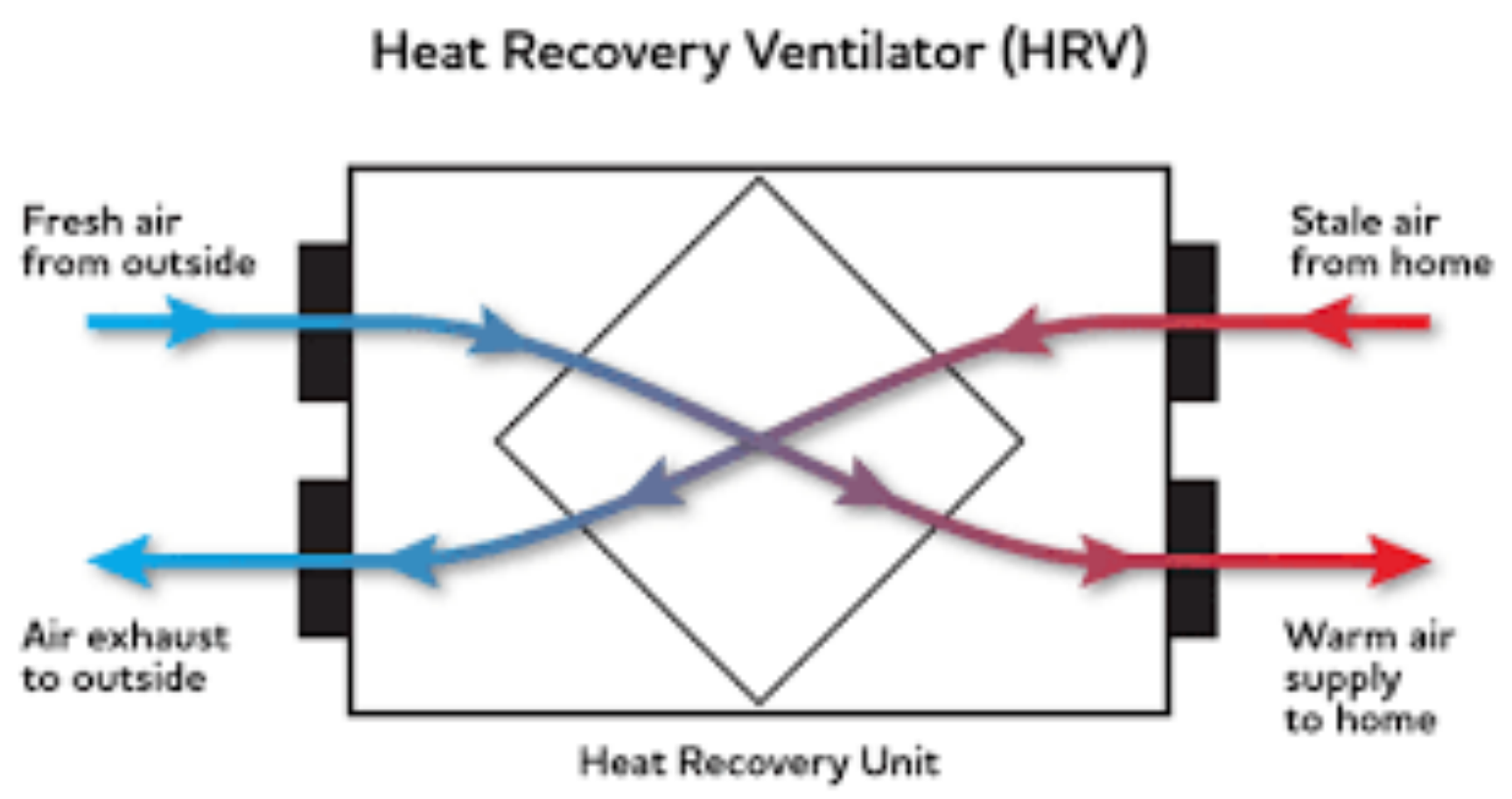
PROS

- CONTROLING INCOMING AIR
- NO DEPRESSURIZATION
- WHOLE HOME DISTRIBUTION
- IDEAL FOR OUR CLIMATE

CONS

- EXPENSIVE
- COMPLICATED
- MAINTENANCE
- UNFAMILIAR SYSTEM
- MOST ENERGY IF COMBINED TO F/A

HRV


Heat Recovery Ventilator (HRV)
Fresh air
from outside
Stale air
from home
Air exhaust
to outside
Warm air
supply
to home
Heat Recovery Unit

TYPICAL HRV

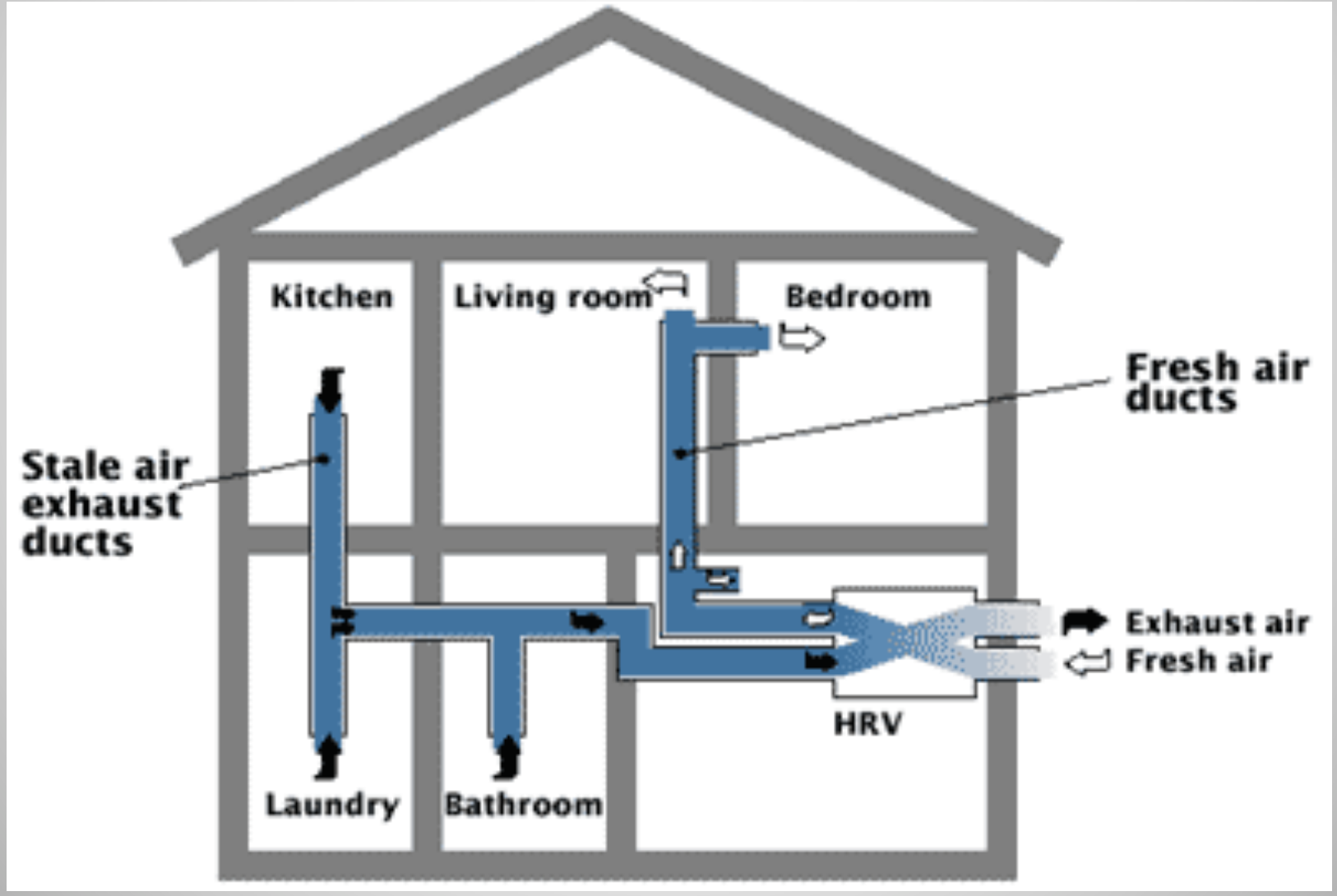
$1200 - $3800 UNIT

$2000 - $12,000 INSTALL

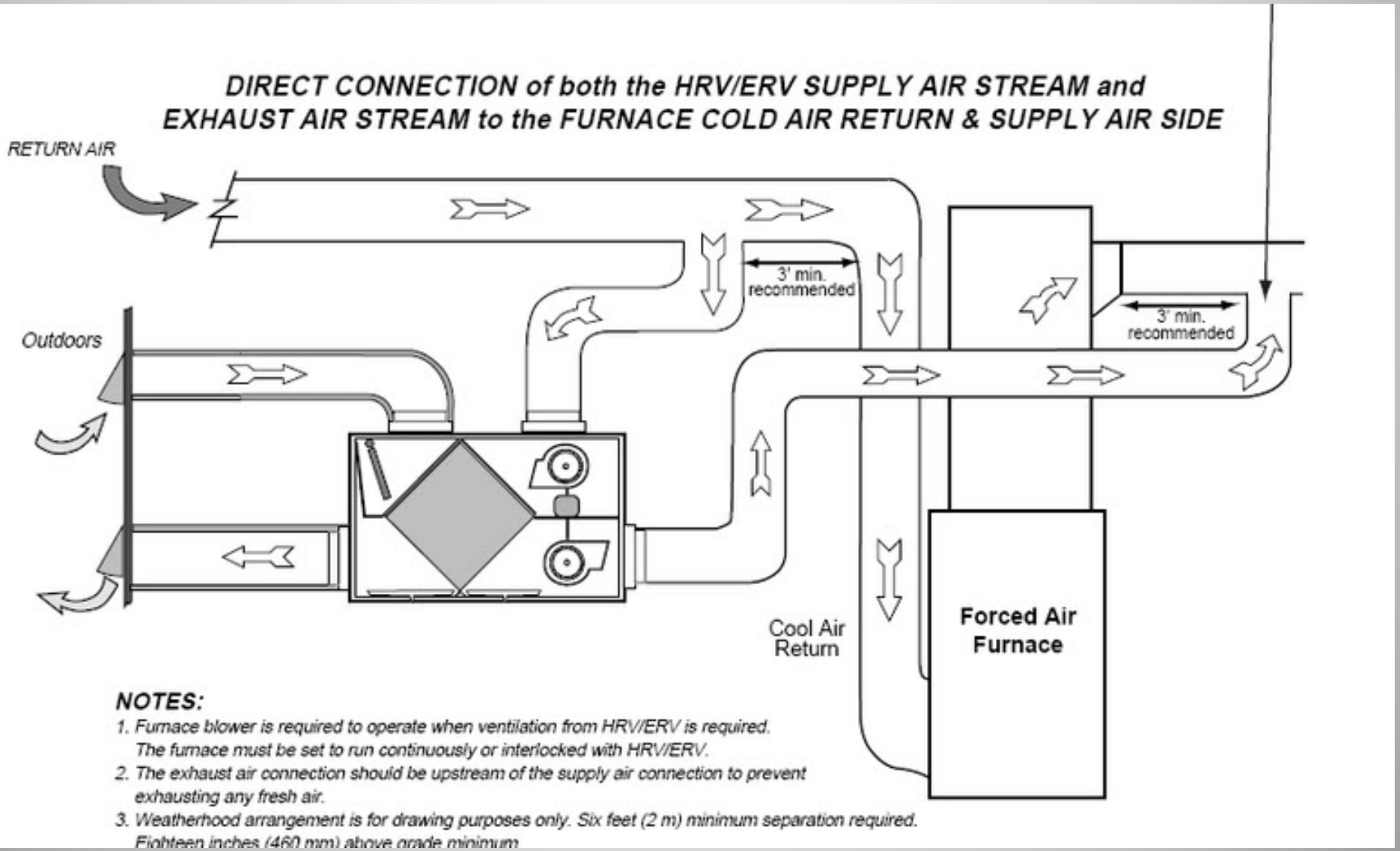
30W – 120W @-25°C

VARIABLE MOTORS, HEPA FILTERS

HRV INSTALLATION



HRV INSTALLATION



HRV INSTALLATION

- PLAN IT OUT
- KEEP ACCESSIBLE
- AVOID DUCTWORK IN THE ATTIC
- KEEP VENTS AWAY FROM ROADS
- MUST BE BALANCED

HRV BALANCING

- SAME AMOUNT OF AIR IN AS OUT
- HOUSE ISN’T EITHER POSITIVE PRESSURE OR NEGATIVE PRESSURE

HRV MAINTENANCE

- TURN OFF POWER
- CLEAN DOOR & TRAY WITH SOAPY RAG
- VACUUM DIRT
- WASH FILTERS WITH YOUR DISHES
- EVERY 3 MONTHS

HRV MAINTENANCE

- TURN OFF POWER
- REMOVE THE CORE
- SOAK IN DISH WATER
- RINCE THOROUGHLY
- LET DRY
- ONCE A YEAR, FALL

HIGH AIR TIGHTNESS LEVELS TO REDUCE HEATING BILLS AND IMPROVE COMFORT WHILE ENSURING GOOD INDOOR AIR QUALITY!