WHOLE-HOUSE VENTILATION SYSTEMS

WHOLE-HOUSE VENTILATION SYSTEMS

PurPOSE OF VENTILATION

Buildings that are more energy efficient, comfortable, and affordable...that's the vision of America's homes of the future. For homeowners, the improvements mean lower operating costs, improved comfort, and improved health. But it also means more responsibilities. Homeowners need to be aware of the importance of using energy efficiently and wisely in their homes. Buildings that are more energy efficient, comfortable, and affordable...that's the vision of America's homes of the future. For homeowners, the improvements mean lower operating costs, improved comfort, and improved health. But it also means more responsibilities. Homeowners need to be aware of the importance of using energy efficiently and wisely in their homes.

CONTROLS

Ventilation experts usually recommend that whole-house ventilation systems be designed to operate automatically so that fresh air is supplied to the house without occupant intervention. An off-cycle control may also be required by codes.

Continuous Control

Some experts recommend continuous ventilation to simplify controls and to avoid unsafe indoor air for the general public. A system that is turned on and off can result in uncontrolled airflow, which may create drafts. Continuous ventilation may be necessary in some cases to ensure proper air quality.
Supply ventilation systems are very effective at pressurizing the building. They use a fan to force outside air into the building while air leaks out of the building through holes in the shell, bath and range hoods, and intentional vents (if any exist). As with exhaust ventilation systems, supply ventilation systems are relatively simple and inexpensive to install. A typical supply ventilation system has a fan and duct system that introduces fresh air into the room, but supplies only a fraction of the ventilation necessary to maintain fresh air. The supply ventilation system does not temper or remove moisture from the make-up air before it enters the house. Therefore, they introduce and exhaust approximately equal quantities of fresh outside air and polluted indoor air. Unbalanced ventilation systems are appropriate for all climates. A balanced ventilation system usually has two fans and two duct systems and facilitates good distribution of fresh air by placing supply and exhaust vents in appropriate places. Fresh air enters the house through the supply ducts, and exhaust air is removed through the exhaust ducts. This arrangement prevents backdrafting of combustion gases from fireplaces and stoves. Supply ventilation systems do not temper or remove moisture from the make-up air before it enters the house. This has the potential to cause problems in cold climates. In very cold climates, the supply ventilation system causes warm indoor air to leak through windows and doors in the exterior wall. Some moisture may condense and form on cool surfaces and must be drained from the heat-recovery system. In cold climates, very cold or warm air entering the house can cause frost formation in the heat exchanger. Because frost buildups reduce ventilation effectiveness and can damage the heat exchanger, heat-recovery systems must have devices to deal with frost.

**Supply Ventilation Systems**

Supply ventilation systems work by pressurizing the building. They force outside air into the building while air leaks out of the building through holes in the shell, bath and range hoods, and intentional vents (if any exist). As with exhaust ventilation systems, supply ventilation systems are relatively simple and inexpensive to install. A typical supply ventilation system has a fan and duct system that introduces fresh air into the room, but supplies only a fraction of the ventilation necessary to maintain fresh air. The supply ventilation system does not temper or remove moisture from the make-up air before it enters the house. Therefore, they introduce and exhaust approximately equal quantities of fresh outside air and polluted indoor air. Unbalanced ventilation systems are appropriate for all climates. A balanced ventilation system usually has two fans and two duct systems and facilitates good distribution of fresh air by placing supply and exhaust vents in appropriate places. Fresh air enters the house through the supply ducts, and exhaust air is removed through the exhaust ducts. This arrangement prevents backdrafting of combustion gases from fireplaces and stoves. Supply ventilation systems do not temper or remove moisture from the make-up air before it enters the house. This has the potential to cause problems in cold climates. In very cold climates, the supply ventilation system causes warm indoor air to leak through windows and doors in the exterior wall. Some moisture may condense and form on cool surfaces and must be drained from the heat-recovery system. In cold climates, very cold or warm air entering the house can cause frost formation in the heat exchanger. Because frost buildups reduce ventilation effectiveness and can damage the heat exchanger, heat-recovery systems must have devices to deal with frost.

**Balanced Ventilation Systems**

Balanced ventilation systems either passively pressure balance a house or passively pressure balance a house and introduce fresh air to the living space. Supply ventilation systems do not temper or remove moisture from the make-up air before it enters the house. Therefore, they introduce and exhaust approximately equal quantities of fresh outside air and polluted indoor air. Balanced ventilation systems are appropriate for all climates. A balanced ventilation system usually has two fans and two duct systems and facilitates good distribution of fresh air by placing supply and exhaust vents in appropriate places. Fresh air enters the house through the supply ducts, and exhaust air is removed through the exhaust ducts. This arrangement prevents backdrafting of combustion gases from fireplaces and stoves. Supply ventilation systems do not temper or remove moisture from the make-up air before it enters the house. This has the potential to cause problems in cold climates. In very cold climates, the supply ventilation system causes warm indoor air to leak through windows and doors in the exterior wall. Some moisture may condense and form on cool surfaces and must be drained from the heat-recovery system. In cold climates, very cold or warm air entering the house can cause frost formation in the heat exchanger. Because frost buildups reduce ventilation effectiveness and can damage the heat exchanger, heat-recovery systems must have devices to deal with frost.

**System Ventilation Systems**

System ventilation systems work by pressurizing the building. They use a fan to force outside air into the building while air leaks out of the building through holes in the shell, bath and range hoods, and intentional vents (if any exist). As with exhaust ventilation systems, supply ventilation systems are relatively simple and inexpensive to install. A typical supply ventilation system has a fan and duct system that introduces fresh air into the room, but supplies only a fraction of the ventilation necessary to maintain fresh air. The supply ventilation system does not temper or remove moisture from the make-up air before it enters the house. Therefore, they introduce and exhaust approximately equal quantities of fresh outside air and polluted indoor air. Unbalanced ventilation systems are appropriate for all climates. A balanced ventilation system usually has two fans and two duct systems and facilitates good distribution of fresh air by placing supply and exhaust vents in appropriate places. Fresh air enters the house through the supply ducts, and exhaust air is removed through the exhaust ducts. This arrangement prevents backdrafting of combustion gases from fireplaces and stoves. Supply ventilation systems do not temper or remove moisture from the make-up air before it enters the house. This has the potential to cause problems in cold climates. In very cold climates, the supply ventilation system causes warm indoor air to leak through windows and doors in the exterior wall. Some moisture may condense and form on cool surfaces and must be drained from the heat-recovery system. In cold climates, very cold or warm air entering the house can cause frost formation in the heat exchanger.
Supply ventilation systems work by pressurizing the building. They use a fan to force outside air into the building, while air leaks out of the building through holes in the shell, bath and range hoods, and interstitial vents (if any exist). As with exhaust ventilation systems, supply ventilation systems are relatively simple and inexpensive to install. A typical supply ventilation system has a fan and duct system that introduces fresh air into the house in one area only, or preferably several rooms of the house that residents occupy most often (e.g., bedrooms, living room) with adjustable window or wall vents in other rooms. Supply ventilation systems allow better control of the air entering the house than do exhaust systems. By pressurizing the house, supply ventilation systems discourage the entry of pollutants from outside the living space and avoid pressurizing the house, which can promote mold, mildew, and decay. Although supply ventilation systems do not temper or remove moisture from the make-up air before it enters the house, they may help reduce moisture and pollutants in the house. Because air is introduced into the house at discrete locations, outdoor air may need to be mixed with indoor air before delivery to avoid cold drafts in the winter. Supply ventilation systems also allow outdoor air introduced into the house to be filtered to remove pollutants and dust or dirt/dust and to dehumidify the air.

Balanced ventilation systems are most applicable in hot or humid climates. Because they prevent hot and humid air from entering the house, supply ventilation systems have the potential to cause moisture problems in cold climates. In winter, the supply ventilation system causes warm interior air to leak through vents opening in the exterior wall and ceiling. If the interior air is warm enough, some moisture may condense on the cold surfaces of the exterior walls where it may cause moisture damage. As with exhaust ventilation systems, supply ventilation systems are less effective when the flow rate is dropped to 100 cfm or less. This approach may require a motorized dampener in the air distribution system to control the flow rate and avoid cold drafts in the winter.

Balanced, heat-recovery systems are most cost effective in all climates. A balanced, heat-recovery ventilation system recovers heat from the warm inside air being exhausted to the fresh but cold outside air, transferring heat from the warm inside air being exhausted to the fresh but cold outside air. A balanced ventilation system usually has two fans and two duct systems and facilitates good distribution of fresh air by placing supply and exhaust vents in appropriate places. Fresh air supply and exhaust vents can be included in every room, but a typical balanced ventilation system is designed to supply fresh air to bathrooms and living rooms where people spend the most time, and exhaust air from rooms where moisture and pollutants are most often generated (bathrooms, bedrooms, and kitchen). Balanced ventilation systems do not temper or remove moisture from the make-up air before it enters the house. They may, therefore, contribute to higher heating and cooling costs compared with heat-recovery systems. Like supply ventilation systems, balanced ventilation systems do not temper or remove moisture from the make-up air before it enters the house and thus may contribute to higher heating and cooling costs compared with heat-recovery systems. Balanced ventilation systems do not temper or remove moisture from the make-up air before it enters the house and thus may contribute to higher heating and cooling costs compared with heat-recovery systems. Balanced ventilation systems do not temper or remove moisture from the make-up air before it enters the house and thus may contribute to higher heating and cooling costs compared with heat-recovery systems.

Balanced, heat-recovery ventilation systems are most cost effective in all climates. A balanced, heat-recovery ventilation system recovers heat from the warm inside air being exhausted to the fresh but cold outside air. A balanced ventilation system usually has two fans and two duct systems and facilitates good distribution of fresh air by placing supply and exhaust vents in appropriate places. Fresh air supply and exhaust vents can be included in every room, but a typical balanced ventilation system is designed to supply fresh air to bathrooms and living rooms where people spend the most time, and exhaust air from rooms where moisture and pollutants are most often generated (bathrooms, bedrooms, and kitchen). Balanced ventilation systems do not temper or remove moisture from the make-up air before it enters the house. They may, therefore, contribute to higher heating and cooling costs compared with heat-recovery systems. Like supply ventilation systems, balanced ventilation systems do not temper or remove moisture from the make-up air before it enters the house and thus may contribute to higher heating and cooling costs compared with heat-recovery systems. Balanced ventilation systems do not temper or remove moisture from the make-up air before it enters the house and thus may contribute to higher heating and cooling costs compared with heat-recovery systems. Balanced ventilation systems do not temper or remove moisture from the make-up air before it enters the house and thus may contribute to higher heating and cooling costs compared with heat-recovery systems. Balanced ventilation systems do not temper or remove moisture from the make-up air before it enters the house and thus may contribute to higher heating and cooling costs compared with heat-recovery systems. Balanced ventilation systems do not temper or remove moisture from the make-up air before it enters the house and thus may contribute to higher heating and cooling costs compared with heat-recovery systems.
WHOLE- HOUSE VENTILATION SYSTEM DESIGNS

The decision to use whole-house ventilation is typically based on the consumer's desire to maintain an indoor environment providing adequate air quality, even with some source control of outdoor air.

Whole-house ventilation systems are usually classified as exhaust or supply ventilation systems. If the mechanical system forces air out of the home, supply ventilation systems are called exhaust ventilation systems, and vice versa. While a balanced ventilation system may exchange supply and exhaust air, it is not considered exhaust or supply ventilation because air is neither forced out of the home nor forced into the home.

WHOLE HOUSE VENTILATION SYSTEMS

Supply Ventilation System

Supply ventilation systems work by pressurizing the building. When air is forced into the building while air leaks out of the building through holes in the shell, bath and range hoods, and interstitial vents (if any exist).

As with exhaust ventilation systems, supply ventilation systems are relatively simple and inexpensive to install. A typical supply ventilation system has a fan and duct system that introduces fresh air into a room (or spaces), perhaps with adjustable window or wall vents in other rooms. Supply ventilation systems allow better control of the air that enters the house than do exhaust ventilation systems. By pressurizing the house, supply ventilation systems discourage the entry of pollutants from outside the living space and avoid backdrafting of combustion gases from fireplaces and appliances. Supply ventilation systems also allow outdoor air into the house to be filtered to remove pollen and dust or dehumidified to provide humidity control.

Supply ventilation systems are most applicable in hot or mixed climates. In climates with warm season bounded by freezing temperatures, supply ventilation systems may be most effective. Heating and cooling ductwork must be be effective, heating and cooling ductwork must be effective. The air handler fan does not operate for heating or cooling when the weather is mild and ventilation is not needed. On mild days, the heating and cooling system may provide the least mechanical ventilation when it is most needed. On cold days, the heating and cooling system may provide the most mechanical ventilation in the winter, when heating is needed. On hot days, air is not introduced except to cool the house before air enters the house, thus providing the most mechanical ventilation when it is most needed. When the air handler fan does not operate for heating or cooling, the benefits of the air handler fan are not at in the winter, when heating is needed. On hot days, air is not introduced except to cool the house before air enters the house, thus providing the most mechanical ventilation when it is most needed. When the air handler fan does not operate for heating or cooling, the benefits of the air handler fan are not at in the summer, when cooling is needed. On mild days, the heating and cooling system may provide the least mechanical ventilation when it is most needed. On cold days, the heating and cooling system may provide the most mechanical ventilation in the winter, when heating is needed. On hot days, air is not introduced except to cool the house before air enters the house, thus providing the most mechanical ventilation when it is most needed. When the air handler fan does not operate for heating or cooling, the benefits of the air handler fan are not at in the summer, when cooling is needed. On mild days, the heating and cooling system may provide the least mechanical ventilation when it is most needed. On cold days, the heating and cooling system may provide the most mechanical ventilation in the winter, when heating is needed. On hot days, air is not introduced except to cool the house before air enters the house, thus providing the most mechanical ventilation when it is most needed. When the air handler fan does not operate for heating or cooling, the benefits of the air handler fan are not at in the summer, when cooling is needed. On mild days, the heating and cooling system may provide the least mechanical ventilation when it is most needed. On cold days, the heating and cooling system may provide the most mechanical ventilation in the winter, when heating is needed. On hot days, air is not introduced except to cool the house before air enters the house, thus providing the most mechanical ventilation when it is most needed. When the air handler fan does not operate for heating or cooling, the benefits of the air handler fan are not at in the summer, when cooling is needed. On mild days, the heating and cooling system may provide the least mechanical ventilation when it is most needed. On cold days, the heating and cooling system may provide the most mechanical ventilation in the winter, when heating is needed. On hot days, air is not introduced except to cool the house before air enters the house, thus providing the most mechanical ventilation when it is most needed. When the air handler fan does not operate for heating or cooling, the benefits of the air handler fan are not at

Air flow diagram:

- **Exhaust air outlet**: Represents the location where exhaust air is removed from the building.
- **Central exhaust fan**: Central system that exhausts air from multiple points.
- **Supply ventilation systems**: Work by pressurizing the building. When air is forced into the building while air leaks out of the building through holes in the shell, bath and range hoods, and interstitial vents (if any exist).
- **Supply ventilation systems**: Work by pressurizing the building. When air is forced into the building while air leaks out of the building through holes in the shell, bath and range hoods, and interstitial vents (if any exist).
- **Balanced ventilation systems**: Combines supply and exhaust ventilation, allowing control of the temperature and humidity of the air.

Airflow Diagram:

- **Air handler**: Central system that manages the flow of air into and out of the building.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Supply ventilation systems**: Work by pressurizing the building. When air is forced into the building while air leaks out of the building through holes in the shell, bath and range hoods, and interstitial vents (if any exist).
- **Balanced ventilation systems**: Combines supply and exhaust ventilation, allowing control of the temperature and humidity of the air.

Airflow Diagram:

- **Air handler**: Central system that manages the flow of air into and out of the building.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Supply ventilation systems**: Work by pressurizing the building. When air is forced into the building while air leaks out of the building through holes in the shell, bath and range hoods, and interstitial vents (if any exist).
- **Balanced ventilation systems**: Combines supply and exhaust ventilation, allowing control of the temperature and humidity of the air.

Airflow Diagram:

- **Air handler**: Central system that manages the flow of air into and out of the building.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Supply ventilation systems**: Work by pressurizing the building. When air is forced into the building while air leaks out of the building through holes in the shell, bath and range hoods, and interstitial vents (if any exist).
- **Balanced ventilation systems**: Combines supply and exhaust ventilation, allowing control of the temperature and humidity of the air.

Airflow Diagram:

- **Air handler**: Central system that manages the flow of air into and out of the building.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Supply ventilation systems**: Work by pressurizing the building. When air is forced into the building while air leaks out of the building through holes in the shell, bath and range hoods, and interstitial vents (if any exist).
- **Balanced ventilation systems**: Combines supply and exhaust ventilation, allowing control of the temperature and humidity of the air.

Airflow Diagram:

- **Air handler**: Central system that manages the flow of air into and out of the building.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Supply ventilation systems**: Work by pressurizing the building. When air is forced into the building while air leaks out of the building through holes in the shell, bath and range hoods, and interstitial vents (if any exist).
- **Balanced ventilation systems**: Combines supply and exhaust ventilation, allowing control of the temperature and humidity of the air.

Airflow Diagram:

- **Air handler**: Central system that manages the flow of air into and out of the building.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Supply ventilation systems**: Work by pressurizing the building. When air is forced into the building while air leaks out of the building through holes in the shell, bath and range hoods, and interstitial vents (if any exist).
- **Balanced ventilation systems**: Combines supply and exhaust ventilation, allowing control of the temperature and humidity of the air.

Airflow Diagram:

- **Air handler**: Central system that manages the flow of air into and out of the building.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Supply ventilation systems**: Work by pressurizing the building. When air is forced into the building while air leaks out of the building through holes in the shell, bath and range hoods, and interstitial vents (if any exist).
- **Balanced ventilation systems**: Combines supply and exhaust ventilation, allowing control of the temperature and humidity of the air.

Airflow Diagram:

- **Air handler**: Central system that manages the flow of air into and out of the building.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
- **Room air exhaust ducts**: Connect exhaust points to the central exhaust fan.
provide clear guidance for its proper operation. For example, it might be controlled by a low-high switch. This allows the A two-speed fan installed in a whole-house ventilation system can be effective but are expensive. Setting the detection level of the view of the sensor. Good coverage may require one or occupants are home to minimize costs. If the occupants and systems be controlled to provide fresh air only when higher capacity than one that operates continuously. Energy-efficient fans should be used to reduce these costs. Fans used in whole-house ventilation systems and preferably less than 1 sone) or installed remotely outside the house, or any agency thereof.

All homes need ventilation—the exchange of polluted area such as a garage or crawlspace, and where needed, in a controlled manner. Spot ventilation—this use of local exhaust hoods (e.g., kitchen range and bath fans) to

- Vernon, California, 90058

For more information, contact: 

2. Choose building materials, paints, furnishings, etc., to minimize emissions of volatile organic compounds (VOCs), and radon that may occur in the house. Provide adequate filtration and properly sized. Smooth sheet metal ducts offer low airflow resistance, it is important to keep them as short as possible—stretch the corrugated material to its full length and cut off the excess. Minimize the number of elbows. Provide adequate support. Use mechanical fasteners and sealants (preferably duct mastic) at all joints. Ducts located outside the conditioned spaces require weatherproofing. Ducts expelling water vapor or other pollutants must exhaust directly to the exterior—not into or through crawlspaces or basement vents. Be very careful not to have moisture damage in wall cavities in humid climates or introduction of asthmatic individual or individuals whose health will be adversely affected. To allow fresh air to be supplied to the house, either naturally or through mechanical ventilation, indoor air quality can be improved by any means that diminishes indoor air pollution or improves the overall health of its occupants.

This switch controls the ventilation system. It should be ON whenever the house is occupied.

DEEPER FOR DESIGNING A WHOLE-HOUSE VENTILATION SYSTEM
1. Air seal the house as much as reasonably practical. Air leakage may contribute to indoor air quality problems; see Appendix for air leakage formulas and details. The ASHRAE ventilation rate equation is expressed as a function of the fresh air supply rate and return port is not installed in every room, then through the wall or window only.aisles should be labelled above doors in rooms with doors that are often left open, or the doors should be ordered to facilitate air flow.

Design and installation criteria
- FANS
- FANS
- FANS
- FANS
- FANS
- FANS
- FANS
- FANS
- FANS
- FANS
- FANS
- FANS
- FANS
- FANS
- FANS
- FANS
- FANS
WHOLE-HOUSE VENTILATION SYSTEMS

A. CONTROLS

Ventilation experts usually recommend that whole-house ventilation systems be designed to operate automatically so that fresh air is supplied to the house without occupant intervention. An off switch may also be required by code.

1. Continuous Control

Some experts recommend continuous ventilation to control and, if needed, supply or remove indoor air pollution. This system may be turned off manually, but leaving it on to control pollution is not nearly as effective as a properly maintained system.

2. Demand Control

A demand control system uses sensors to determine the ventilation rate needed to control pollution. This system is more expensive to design and install than a continuous control system.

3. Occupancy Control

In some climates, it is not necessary to apply continuous ventilation to control pollution. Some appropriate ventilation rates for these climates can be found in the literature on indoor air pollution control.

4. Automatic Control

Automatic control systems use sensors to determine the ventilation rate needed to control pollution. This system is more expensive to design and install than a continuous control system.

5. Manual Control

Manual control systems use manual switches to control the ventilation rate.

WHOLE-HOUSE VENTILATION SYSTEMS

A. INSTALLATION AND MAINTENANCE

1. Installation

Installation of a whole-house ventilation system is a critical part of the system’s operation. Improper installation can reduce the system’s effectiveness or cause problems. The installer should be a qualified technician who is familiar with the system’s operation.

2. Maintenance

Maintenance of a whole-house ventilation system is important to ensure its continued operation. This includes checking the system’s operation, cleaning the air filters, and maintaining the proper airflow.

WHOLE-HOUSE VENTILATION SYSTEMS

A. ENERGY USE

The energy use of a whole-house ventilation system is important to consider when designing the system. The energy use can be determined by calculating the airflow, the fan efficiency, and the energy required to operate the fan.

B. DESIGN AND INSTALLATION CRITERIA

1. Fresh Air Supply

Fresh air should be supplied to the occupied spaces of the house to replace outdoor air. The amount of fresh air should be determined by considering the building’s ventilation needs, the indoor air quality, and the comfort needs of the occupants.

2. Ventilation Rates

Ventilation rates should be determined based on the building’s heating and cooling needs, the indoor air quality, and the comfort needs of the occupants.

3. Flow Rates

Flow rates should be determined based on the building’s heating and cooling needs, the indoor air quality, and the comfort needs of the occupants.

4. Energy Use

Energy use should be determined based on the building’s heating and cooling needs, the indoor air quality, and the comfort needs of the occupants.

5. System Efficiency

System efficiency should be determined based on the building’s heating and cooling needs, the indoor air quality, and the comfort needs of the occupants.

6. Fan Efficiency

Fan efficiency should be determined based on the building’s heating and cooling needs, the indoor air quality, and the comfort needs of the occupants.

7. Energy Costs

Energy costs should be determined based on the building’s heating and cooling needs, the indoor air quality, and the comfort needs of the occupants.

WHOLE-HOUSE VENTILATION SYSTEMS

A. PERFORMANCE

The performance of a whole-house ventilation system should be evaluated based on the system’s ability to control indoor air pollution, the system’s energy use, and the system’s cost-effectiveness.

B. OPERATION

The operation of a whole-house ventilation system should be evaluated based on the system’s ability to control indoor air pollution, the system’s energy use, and the system’s cost-effectiveness.

C. MAINTENANCE

The maintenance of a whole-house ventilation system should be evaluated based on the system’s ability to control indoor air pollution, the system’s energy use, and the system’s cost-effectiveness.

WHOLE-HOUSE VENTILATION SYSTEMS

A. PURPOSE OF VENTILATION

Ventilation is necessary to control indoor air quality. Improving indoor air quality can reduce the risk of respiratory infections, allergy symptoms, and other health problems.

B. VENTILATION STRATEGIES

1. Whole-House Ventilation

Whole-house ventilation is used to control indoor air quality. It is used to provide fresh air and remove pollutants from the building.

2. Spot Ventilation

Spot ventilation is used to control indoor air quality in specific areas of the building. It is used to control indoor air quality in areas where pollutants are generated.

3. Mixed Ventilation

Mixed ventilation is used to control indoor air quality in areas where pollutants are generated. It combines whole-house ventilation and spot ventilation.

4. Natural Ventilation

Natural ventilation is used to control indoor air quality in areas where pollutants are generated. It is used to control indoor air quality in areas where pollutants are generated.