

1920

EC1186 Heating and Ventilation

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NEBRASKA
COOPERATIVE EXTENSION WORK

Under Act of Congress, May 8, 1914.

The University of Nebraska College of Agriculture Extension
& U. S. Department of Agriculture Cooperating Circular 1186
W. H. Brokaw, Director Extension Service

1920

Heating and Ventilation.

General Principles.

1. Air is constantly in motion. Warm air rises. There must be circulation in the heating system.
2. Air is warmed only by direct contact with a heated surface.

Styles of Heating.

1. Direct.- Where the heating surface is in the room.
Example.- Stoves, steam, and hot water heat.
2. Indirect.- Where the air from the heating surface is sent into the room.
Example.- Hot air furnace.

Methods of Heating.

Fireplaces.

If properly constructed, a fireplace is worth providing even in a small house. It serves as a means of ventilation. An open fire is welcome on a chilly day in spring or fall, and makes a living room seem much more livable and cheery. It serves as a means for drawing the family together.

Place the fireplace so that as many as possible may gather about it. Do not place in a corner.

Hot Air.

Hot air furnaces are cheapest to install, but they are most expensive to operate and are least durable. As all the air which is warmed must come in contact with the heated side of the furnace, it is economical to install a large one, which will consume less fuel and last longer than a smaller size. If the furnace is too small, it may be necessary to overheat the air. Overheated air is injurious to health. The danger from fire is greater where the furnace is overheated.

The total area of cold air registers must be at least five-sixths that of the hot air, as air expands about one-sixth in volume when heated.

Place the furnace in the northwest corner of the basement, as that is the direction from which the coldest winds come.

Cold air registers should open outside. The openings should be carefully screened. Provision should be made for taking the air from different sides of the house, as in windy weather the intake on the windward side will have to be closed. The casing about the furnace must be absolutely tight, so that no air from the cellar can possibly get into the pipes. If the furnace is properly installed, no lint or dust will come thru the registers.

Hot air pipes should be as direct as possible, circular, and covered with asbestos.

The hot air register should be placed high in the wall of a room, and the cold air register below it on the same side of the room.

Steam Heat.

Not practical for small houses. It takes more skill to operate than either hot air or hot water. It is cheaper to install and just as cheap to operate as hot water.

Hot Water

Hot water is the most expensive system to install, but will last the longest and costs the least to operate. Hot water heat is mild and uniform. The furnace itself takes up less room in the basement than the hot air.

Place radiators under the windows. If a grating is placed in the wall back of the radiator, the room is constantly supplied with warmed fresh air. This is the ideal method, but is much more expensive to operate.

Ventilation.

The question of ventilation is a serious one in the modern house, which is so well constructed that air cannot come in around doors and windows. Besides, some of the modern heating systems make no provision for ventilation.

How Air is Polluted.

1. By perspiration and the breath.
2. By some methods of lighting and heating, as the use of kerosene, gasoline, gas, and coal.
3. By odors from cooking.

Rules for Ventilating.

1. Air should be drawn from a pure source.
 2. Air should be sufficient in amount, warmed to the right temperature, and properly humidified.
 3. Air should be supplied constantly - not in gusts.
- There should be no drafts.

Methods of Ventilating the House.

The fireplace is an efficient means of ventilating. When there is no fire in the grate, there may be a downward draft. This can be remedied by placing a burning candle or lamp above the top of the opening.

Window boards should be made to put under windows when they are raised. Every window should be easily lowered from the top. It is well in the kitchen to have the windows extend to the ceiling or to place transoms above the windows. If the cold air intake of the hot air furnace provides air from out-of-doors, no other means of ventilating need be provided.

Keeping Houses Cool in Summer.

Doors should be so placed that there is a direct current of air thru the house from north to south. Ventilators in the ends of the gables will keep a one-story house much cooler.

Humidity

Air to be most healthful should contain some moisture. The air of most homes is too dry. Keep a pan of water on or under the stove or radiator, or near the register.

Many house plants in the room keep the air moist enough because of the evaporation from the soil.

Keep the water pan of the hot air furnace filled.

Keep a jar of water near the piano.