



Multifamily Facility Management Services

COMBUSTION AIR INTAKE

Description:

There are two basic reasons for installing an intake vent for combustion air: one is safety; the other is economy. The safe burning or “combustion” of natural gas demands approximately ten cubic feet of air for every cubic foot of gas burned. (The physics of oil burning is slightly different, but the principle is the same.) If the boiler room does not provide enough combustion air, the flames will be starved of oxygen, resulting in incomplete combustion and the potential for creating carbon monoxide. Lack of enough combustion air may also prevent proper venting of flue products which, combined with incomplete combustion, could result in the pooling of carbon monoxide in the boiler room or other places.

Lack of adequate combustion air also costs money. If outside air is not provided for combustion, warm air must be drawn from the heated building into the boiler room in order to satisfy the requirements of combustion. This heated air is eventually sent up the chimney with the rest of the byproducts of combustion. This process increases the overall movement of air within a building during the heating season and induces greater infiltration of cold air to replace the air that has been used for combustion.

Confirm that the Wisconsin State Building Code requires one square inch of outside air opening for each 4,000 Btu/h input on a burner with forced air and 2,000 Btu/hr input for free air or atmospheric. Ideally this opening should have a motorized combustion air damper on it so that it opens to provide combustion air whenever the burner is operating, but closes at other times to prevent unwanted outside air from entering the building at other times. This is accomplished by interlocking the burner with an operator on the damper.

How to Implement:

In most boiler rooms, the capacity for making an opening for outdoor air is readily available. For instance, an existing closed window can often be permanently opened and converted into a combustion air intake. The combustion air intake should be periodically inspected to be sure it is clean and dirt free so that it functions properly. When practical, the addition of a motorized damper should be considered.