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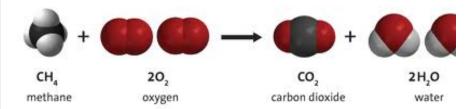
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# **Combustion Moisture**

**Combustion:** A combustion reaction is when oxygen combines with another compound to form water and carbon dioxide. These reactions are exothermic, meaning they produce heat.



Natural Gas Combustion Equation

 $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$ Propane Combustion Equation

Some projects need an especially dry heat source to minimize the amount of moisture in the building.

The question that is asked most for jobs such as these;

How much moisture does a direct-fired heater introduce into a project?

Direct-fired heaters operate on either natural gas

or propane. Both of these fuels produce some water during combustion.

How much water do they produce?

#### Propane

100,000 BTUH = 0.98 Gallons of Water

## **Natural Gas**

100,000 BTUH = 1.25 Gallons of Water

# Solution:

Most jobs have such a high infiltration (openings to the outside) that combating moisture on high relative humidity days is very difficult. If a building is near completion and sealed up tight, and the goal is to minimize moisture, use an indirect-fired heater or add a dehumidifier to the project.

A construction <u>dehumidifier</u> removes approximately 30 gallons of water per day.

A <u>desiccant dehumidifier</u> can remove up to 350 gallons of water per day.

An <u>indirect-fired heater</u> sits outside and does not introduce any water into the building. The negative is that they produce 20% less heat than a directfired heater and are rented at twice the daily price as a direct-fired heater. The project fuel bill will be 20% more per year.

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