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 **dehumidifier** removes approximately 30 gallons of water per day.

A **desiccant dehumidifier** can remove up to 350 gallons of water per day.

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