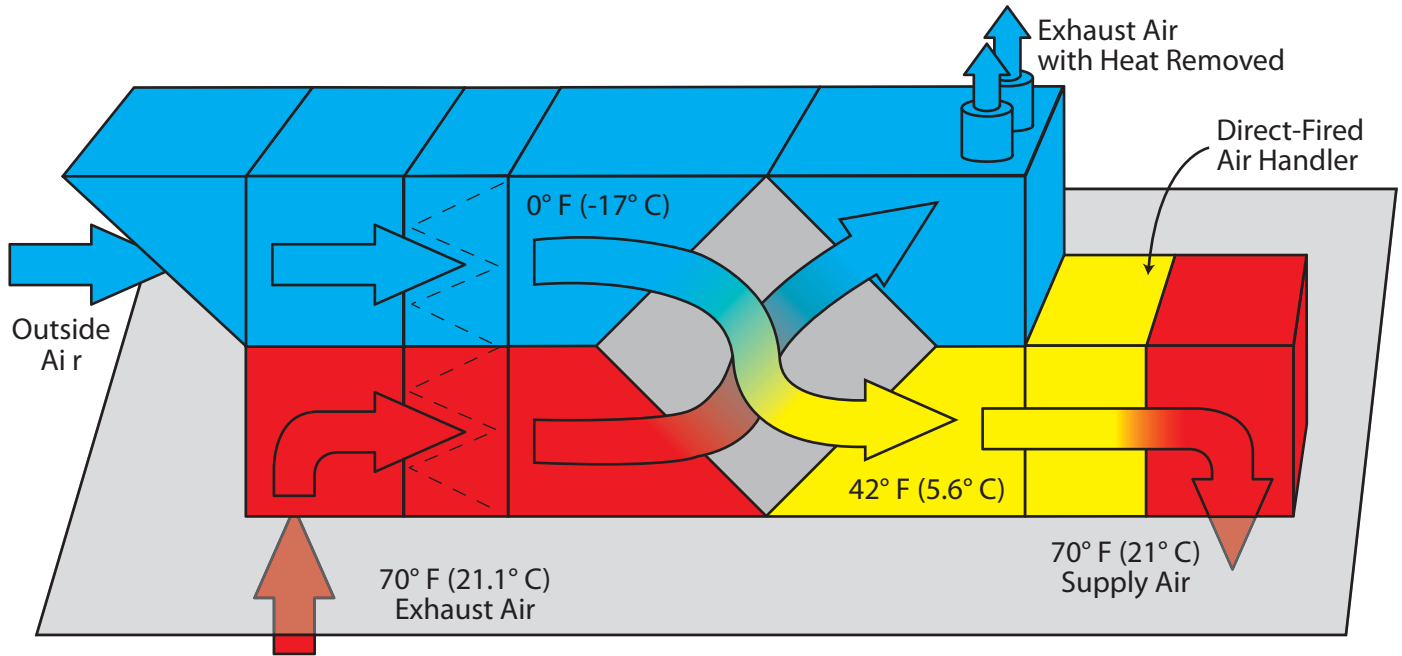


# Energy Recovery Modules

## for Direct or Indirect-Fired Heating or Cooling Sections



The above depicts how an energy recovery module works with a direct-fired, make-up air handler. The 60% efficient energy recovery module handles two air streams in a cross-flow pattern: 0° F (-17.8° C) outside air and 70° F (21.1° C) exhaust air, in this example.

By using exhaust air to heat outside air, air entering the air handler\* is 42° F (5.6° C), rather than 0° F (-17.8° C). As a result, less energy is required to heat outside air entering the make-up air handler.

### **\*\*BTU/hr required to heat outside air to 70° F (21.1° C):**

**without** energy recovery module - 2,268,000 BTU/hr

**with** energy recovery module - 907,200 BTU/hr

\*Formula: energy recovery module efficiency x (exhaust air temperature – outside air temperature) + outside air temperature = air temperature exiting energy recovery module entering air handler

$$60\% [70^{\circ}\text{ F } (21.1^{\circ}\text{ C}) - 0^{\circ}\text{ F } (-17.8^{\circ}\text{ C})] + 0^{\circ}\text{ F } (-17.8^{\circ}\text{ C}) = 42^{\circ}\text{ F } (5.6^{\circ}\text{ C})$$

\*\*Formula (based on 30,000 CFM unit):  $1.08 * 30,000 * (\text{exhaust air temperature} - \text{outside air temperature}) = \text{BTU/hr}$

$$1.08 * 30,000 * [70^{\circ}\text{ F } (21.1^{\circ}\text{ C}) - 0^{\circ}\text{ F } (-17.8^{\circ}\text{ C})] = 2,268,000 \text{ BTU/hr}$$

$$1.08 * 30,000 [70^{\circ}\text{ F } (21.1^{\circ}\text{ C}) - 42^{\circ}\text{ F } (5.6^{\circ}\text{ C})] = 907,200 \text{ BTU/hr}$$

#### Installation Code and Annual Inspections:

All installation and service of RAPID™ equipment must be performed by a contractor qualified in the installation and service of equipment sold and supplied by Rapid Engineering LLC and conform to all requirements set forth in the Rapid Engineering LLC manuals and all applicable governmental authorities pertaining to the installation, service, operation and labeling of the equipment. To help facilitate optimum performance and safety, Rapid Engineering LLC recommends that a qualified contractor conduct, at a minimum, annual inspections of your RAPID™ equipment and perform service where necessary, using only replacement parts sold and supplied by Rapid Engineering LLC.

**Further Information:** Applications, engineering and detailed guidance on systems design, installation and equipment performance is available through RAPID™ representatives. Please contact us for any further information you may require, including the Installation, Operation and Service Manual.

This product is not for residential use.

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