Improved indoor air quality – Helps dilute airborne contaminants helping exhaust systems operate more efficiently.

Superior ventilation - System can be designed to automatically modulate outdoor air volume from 20% to 100% to help meet ventilation requirements in cold weather and decrease heat buildup in warm weather.

More consistent temperatures and less stratification – Free ventilation cooling effectively helps reduce indoor air temperatures to help keep people and processes productive.

Improved efficiency and quiet operation from airfoil style fans.

Customization - Broad range of sizes and options.

Ease of management and control – Computer-based Intelligent Controls provide system information easily and effectively.

Cost savings – Heating systems deliver up to 100% of the heat generated into the building resulting in energy savings.

Installation flexibility and convenience - Heating systems require little to no ductwork. The evaporative cooling systems do not require condensers, chillers, water towers or distribution piping.

1.800.536.3461
www.rapidengineering.com
Inlet Hood
Inlet hoods help minimize water entrainment into the air handler. Incoming air enters the air handler via an angled face covered with birdscreen.

Filter Section
The filter section cleans the outside air before it is delivered to the conditioned space. Various filters are available, including pleated, polyester, aluminum mesh, bag and cartridge.

Inlet Plenum
Inlet plenums help minimize water entrainment into the air handler. Incoming air enters the air handler via an angled face covered with birdscreen.

Filtered Mix Box Section
Treating birth-outside and return air, filtered mix box sections help clean the incoming air before it is delivered to the conditioned space. Various filters are available, including pleated, polyester, aluminum mesh, bag and cartridge. Damper options include manual positioning, summer ventilation economizer and automatic dampers. Special paint colors and/or exterior coatings are available upon request.

Energy Recovery
Standard energy recovery modules are available for air flows up to 60,000 CFM (larger custom sizes also available). When the air handler is heating, an energy recovery module unit can help greatly reduce fuel consumption by using warm exhaust air to pre-heat the incoming outdoor air. During summer ventilation, when a mechanical cooling section is used or when defrost is required, face and bypass dampers may be used to divert outside air around the energy recovery module. With a plate-style energy recovery module, exhaust air and incoming air pass each other in a cross-flow pattern, divided by thin metal plates. Sensible energy is transferred from the exhaust air to the incoming air via conduction. There are several benefits of the plate-style exchanger over other types of energy recovery, including minimal wear and long life because there are no moving parts. In addition, the exhaust air will not contaminate the supply air.

Exterior Finish (Paints)
Three standard colors are available for equipment exterior finish. Each color is represented below (actual color may vary due to print quality vs. product application). Colors are available for enamel or epoxy paint. The final external coating incorporates a high gloss acrylic resin modified alkyd enamel to help ensure surfaces and fasteners are corrosion resistant. Special paint colors and/or exterior coatings are available upon request.

Cooling Coils
A variety of mechanical cooling coils are available, including:
- Direct Expansion (DX) Coils - Common in systems up to 100-150 tons.
- Chilled Water - Well suited for 100-250 plus tonnage range.
- Direct-Fired Burner Coils - Available today by combining filtration, energy recovery, including minimal wear and long life because there are no moving parts.

Direct-Fired Burner
Direct-fired burners maintain 100% combustion efficiency and have a nominal turndown of 30:1. Burners consist of an aluminum manifold and stainless steel burner plates. Burner assembly includes manually-adjustable profile plates, ultra-violet scanner flame failure system, electric spark ignition, main and pilot gas lines.

Fan Section
Features a single width, single inlet (OWSI) backward-inclined airfoil fan. The fan section easily handles large air volumes ranging from 5,000 to 150,000 CFM at higher static pressures and with lower motor horsepower. An inlet cone is used to stream line air flow into the fan wheel to help ensure full and even loading of the fan blades. Fan bearings have a minimum American Bearing Manufacturers Association (ABMA) rating of L10 at 100,000 hours for long life. Each fan is driven by multiple V-belt drives connected to the motor. Five discharge openings are available (top, bottom, left, right, end) for flexibility.

Mix and Match various combinations of optional sections to meet specific design requirements. Create one of the greenest air handlers available today by combining filtration, energy recovery, a direct-fired burner and the standard backward inclined airfoil fan.

Rapid® 4000-Series Air Handler Features and Benefits of the Customizable
RAPID® 4000-Series air management systems help improve indoor air quality and provide air comfort. RAPID® 4000-Series air handlers can be designed to efficiently establish and maintain a slightly pressurized condition in your facility, while gently tempering outdoor air and, as required, mixing it with existing indoor air.

Note: All models are available in upright or horizontal, as well as indoor or outdoor configurations.

<table>
<thead>
<tr>
<th>Model</th>
<th>4024</th>
<th>4036</th>
<th>4040</th>
<th>4044</th>
<th>4049</th>
<th>4054</th>
<th>4060</th>
<th>4066</th>
<th>4073</th>
<th>4080</th>
<th>4089</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airflow (CFM)</td>
<td>5,000 - 10,000</td>
<td>10,000 - 25,000</td>
<td>15,000 - 30,000</td>
<td>20,000 - 35,000</td>
<td>25,000 - 45,000</td>
<td>30,000 - 60,000</td>
<td>35,000 - 80,000</td>
<td>40,000 - 95,000</td>
<td>55,000 - 100,000</td>
<td>55,000 - 150,000</td>
<td></td>
</tr>
<tr>
<td>Output (MBH)*</td>
<td>540-1,080</td>
<td>1,080-2,700</td>
<td>1,620-3,240</td>
<td>2,160-3,780</td>
<td>2,700-4,860</td>
<td>3,240-6,480</td>
<td>3,780-8,640</td>
<td>4,320-10,260</td>
<td>5,940-10,800</td>
<td>5,940-16,200</td>
<td></td>
</tr>
</tbody>
</table>

*1 MBH=1,000 Btu/h. Output range indicates range at maximum temperature rise.

**Model Configurations**

**Air Management (AM) Models**

**Design:** Variable outside air/return air ratio within the range of 100% outdoor air/0% return air to 20% outdoor air/80% return air. Discharge air volume is fixed.

**Function:** Automatically responds to building pressure and temperature needs.

**Application:** Used in industrial and commercial buildings that have air quality and specific air management requirements.

**Variable Air Volume (VAV) Models**

**Design:** 100% outdoor air with a variable discharge air volume from 20%-100% with use of bypass section.

**Function:** Automatically responds to building pressure needs.

**Application:** Used in buildings requiring various levels of replacement air.

**Make-Up Air (MUA) Models**

**Design:** 100% outdoor air with a fixed discharge air volume (or a variable discharge air volume if a variable frequency drive is used).

**Function:** Supplies direct replacement air for building mechanical exhaust.

**Application:** Used as make-up air for industrial applications which incorporate mechanical exhaust.

**Fixed Recirculation (FR) Models**

**Design:** Fixed 80% return air and 20% outdoor air. Discharge air volume is fixed.

**Function:** Provides efficient, low-cost heating where minimum ventilation rates are required.

**Application:** Used in warehouses, distribution centers, retail outlets, etc.
Intelligent Controls are key to keeping HVAC and productivity costs in line. Each air handler can be controlled by a DDC module to monitor, control, diagnose, log and report on a variety of functions. Time-saving benefits of Intelligent Controls include:

- **Easy to use and service** - Helps simplify set up and allows for quick and efficient programming changes.

- **Greater control** - Temperature, humidity and building pressure can be precisely monitored. Automatic tracking and recording of heating energy use and test operating parameters also available.

- **Early detection of problems** - System can proactively detect and notify of potential problems.

- **Data collection and trending** - Hourly logs of each air handler available. Information can be downloaded into a spreadsheet program for in-depth analysis.

- **Compatibility** - Via modem, Internet or local network; controls communicate via the leading protocols including BACnet®, ModBus, N2Bus and LonWorks systems.*

### Typical Installations

<table>
<thead>
<tr>
<th>Mezzanine Supported (Indoor)</th>
<th>Horizontal on Roof Curb (Outdoor)</th>
<th>Upright (Indoor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OA → DA → RA</td>
<td>OA → DA → RA</td>
<td>DA → OA → RA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suspended (Indoor)</th>
<th>Horizontal on Legs (Indoor or Outdoor)</th>
<th>Upright (Outdoor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OA → DA → RA</td>
<td>OA → DA → RA</td>
<td>DA → OA → RA</td>
</tr>
</tbody>
</table>

**Legend**
- OA = Outside Air
- DA = Discharge Air
- RA = Return Air

---

*There are references on this document to various trademarks. All trademarks mentioned herein, whether registered or not, are the property of their respective owners. Rapid Engineering LLC is not sponsored by or affiliated with any of the trademark or registered trademark owners, and makes no representations about them, their owners, their products or services. Rapid Engineering LLC is not sponsored by or affiliated with BACnet®, ModBus, N2Bus or LonWorks.*