

# D. DUCT AND VENTING

## D.4.2. Fresh Air Dampers

**MANUAL DAMPER HOODS** – Manual damper hoods are often installed as a low cost substitute for an economizer.

The blade inside the hood is manually set to restrict the opening by introducing Static Pressure, thereby balancing the outside air with the return air entering the RTU.

The drawback to a manual damper is that it is open 24 hours a day, 365 days a year. Therefore they introduce outside air during occupied and unoccupied modes increasing the load on the rooftop unit.

**MOTORIZED DAMPER HOODS** – A motorized damper is economical, and provides more comfort than a manually adjusted hood damper.

The motorized damper is coupled to an actuator, and designed to open when the RTU fan is running,

and close when the fan is off. The advantage of the motorized damper is that the outside air is no longer a factor once the RTU fan is cycled off.

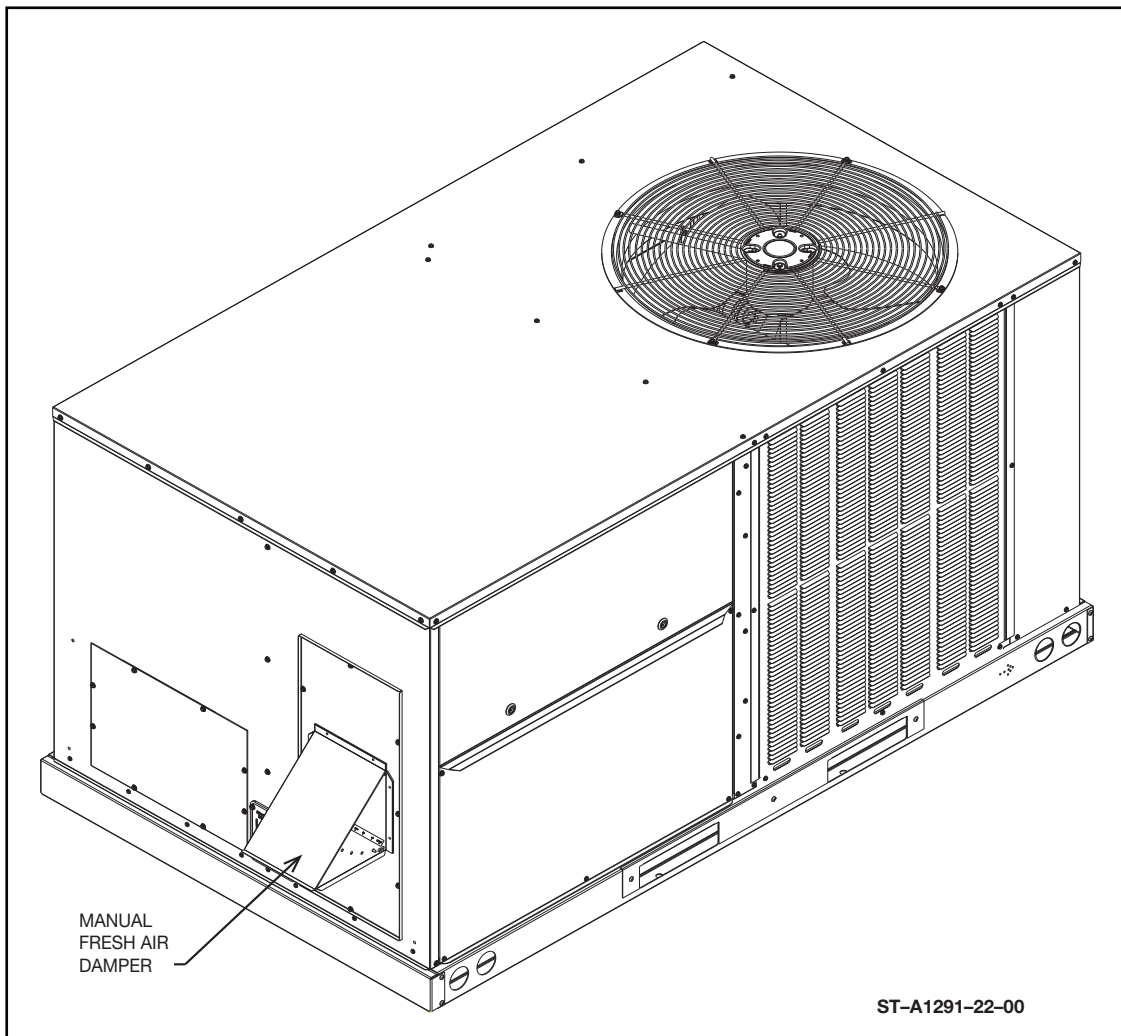
By connecting a Timer, CO2 Sensor or Smoke Detector in series between the RTU fan (“G” on the Thermostat) and actuator, the damper can be controlled during “Unoccupied” hours, or allow the damper to only introduce outside air during “On-Demand Occupancy.”

Fresh Air Dampers come shipped with a separate document for Installation & Operation instructions. Refer to that document for information on how to install and adjust the dampers.

For reference, the Installation Instructions for Fresh Air Dampers may be found in the parts bag for the factory installed dampers, in the box for field installed dampers, or on the manufacturer’s website.

Note: Damper appearance may vary.

Figure D.4.2. – A: Fresh Air Damper

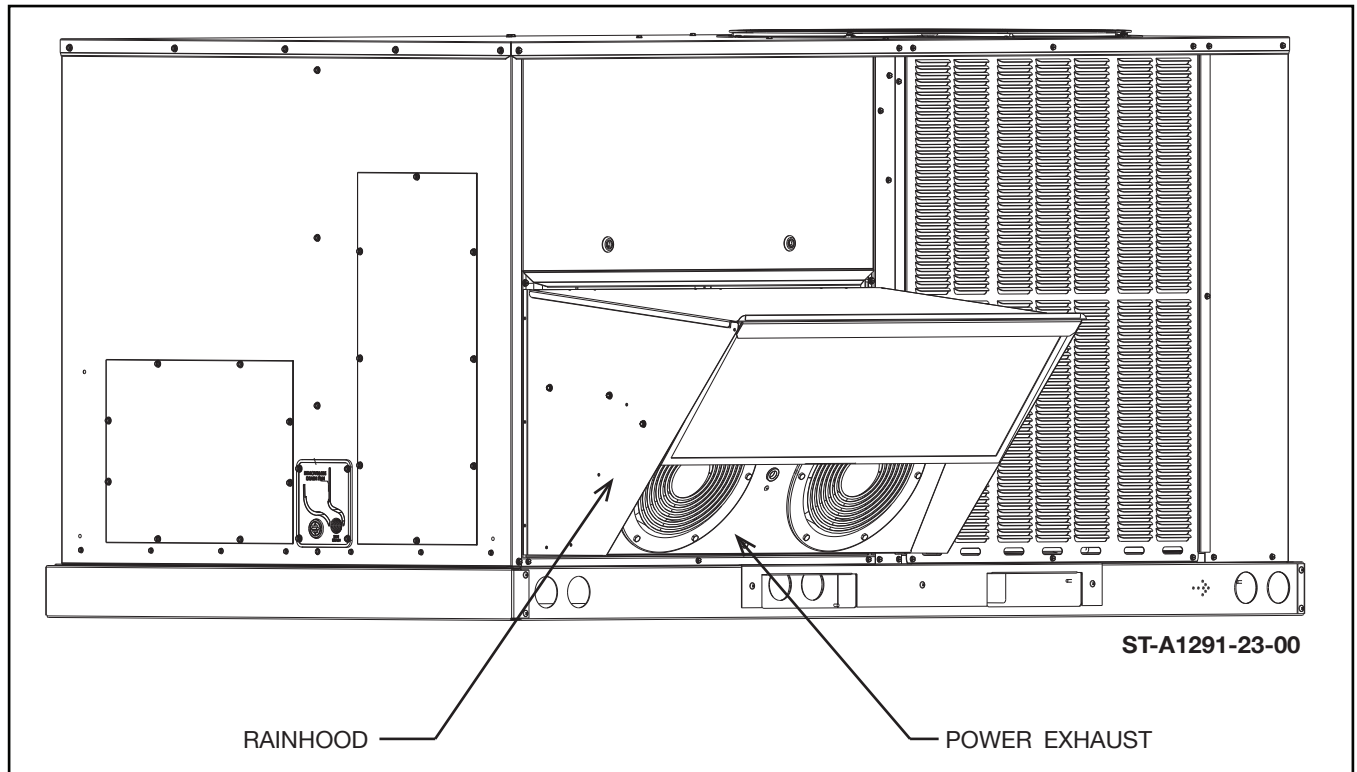


## D. DUCT AND VENTING

### D.4.3. Powered Exhaust

**POWER EXHAUST** – This accessory is a motorized fan designed to remove air from the conditioned space efficiently. While this is useful for removing a high positive pressurization, caution must be taken in the setup of the system to avoid creating a negative pressure within the conditioned space. If negative pressure occurs, leaky windows, doors, and electrical fixtures will allow the outside air to creep in causing drafts or hot spots within a room. Note: Accessory appearance may vary.

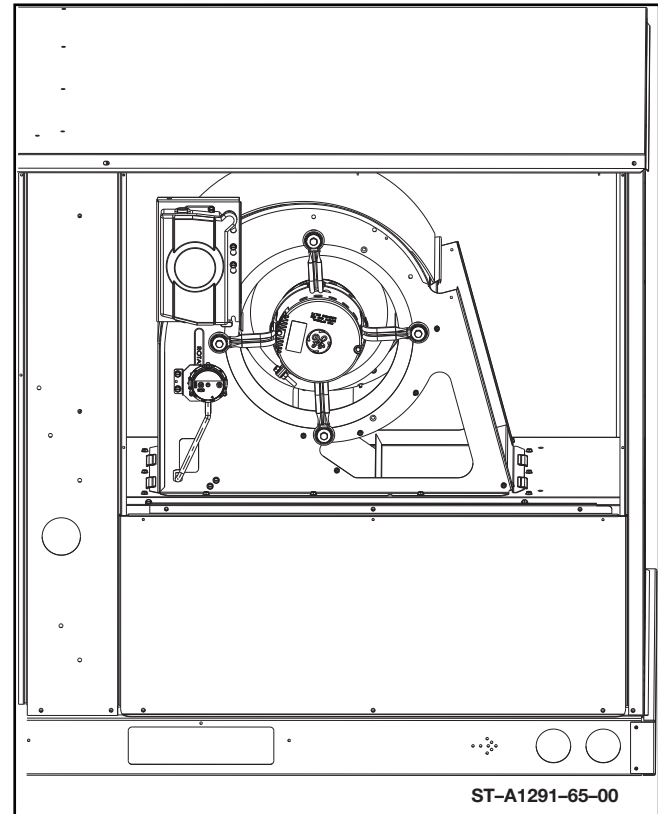
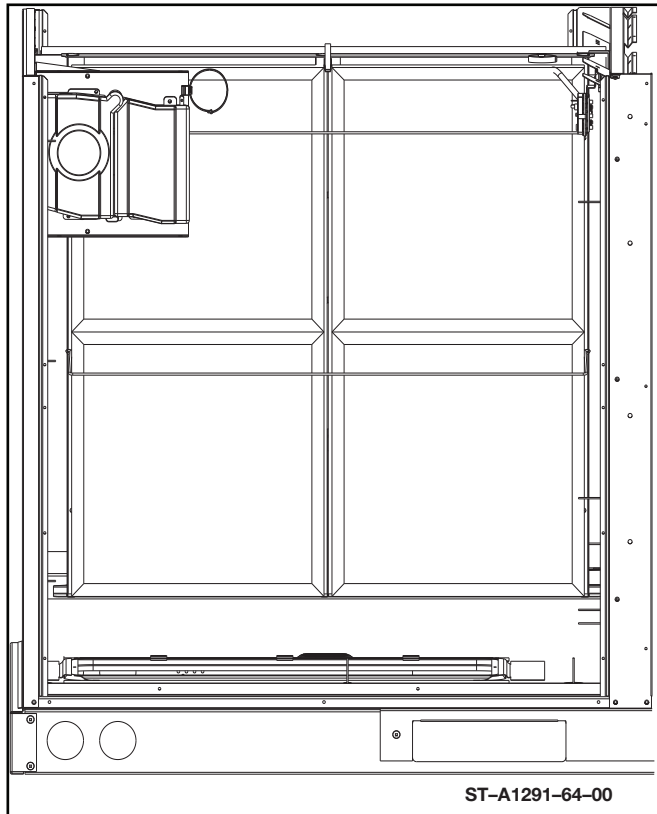
**Figure D.4.3. – A: Powered Exhaust**



# D. DUCT AND VENTING

## D.5. Smoke Detectors

Figure D.5. – A: Smoke Detector Assembly



### D.5.1. Supply Duct Smoke Detectors

#### D.5.1.1. Field Installed – Installation, Wiring and setup

Field install Supply and Return Duct Smoke Detectors come shipped with a separate document for Installation & Operation instructions. Refer to the separate Installation Instructions for installing, wiring, and setup of a supply and return smoke detector.

#### D.5.1.2. Factory Installed – Inspection and setup

Inspect the smoke detector assembly for any damage during shipping. Use **Figure D.5. – A** for reference. Confirm that all wiring connections are still secure. Refer to the separate Installation Instructions shipped with the smoke detector for wiring diagrams and additional assembly instructions. These instructions may be found in the parts bag in the unit or on the manufacturer's website.

#### D.5.1.3. Field Installed 3rd Party Smoke Detectors or Fire Control Panels

See **section F.1.2.** for the proper connection points for a remote smoke detector. DO NOT break 24VAC to the Thermostat: shutdown will not occur. DO NOT break 24VAC from the transformer: it can overload the smoke detector controls.

Note: Smoke Detector appearance may vary.

### D.5.2. Remote Smoke Detectors Reference

Refer to **Section F.1.2. Occupancy and Remote Smoke Detector Connections** for non-DDC connections.

Refer to **Section F.2.5.1. Remote Smoke Detector/Fire Control Connection** for DDC connections.