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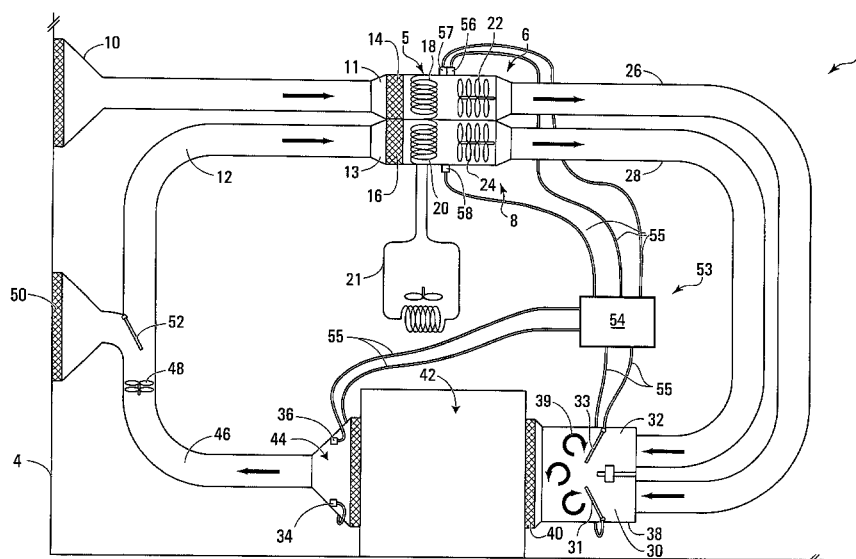
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[Continued on next page]

(54) Title: ENERGY-EFFICIENT VARIABLE-AIR VOLUME (VAV) SYSTEM WITH ZONAL VENTILATION CONTROL



(57) Abstract: A ventilation and air-conditioning system uses a first variable-air-volume system to cool and dehumidify fresh outside air and deliver it through a first duct to a mixing box located downstream. The system also uses a second variable-air-volume system to further cool and dehumidify recycled air and deliver it through a second duct to the mixing box where the fresh and recycled air are able to mix prior to ventilation into a room or office. The system uses a carbon dioxide sensor and a temperature sensor to provide feedback signals to a control system, which in turn regulates fan speeds and damper openings in order to provide optimal cooling and ventilation and to conserve energy when cooling and ventilation requirements are low.



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