downstream in a supply direction in the first processing air supply part, a part of air supplied from the air handling unit may be supplied to the room, the remaining part of the air supplied from the air handling unit may be supplied to the cooling device, and a heating device may be provided in the regeneration air supply part.

The air conditioning system according to a fifth aspect of the present invention may further include a heat pump including a compressor, an expansion valve, a condenser that is configured to condense a heat medium which circulates between the compressor and the expansion valve, and an evaporator that expands the heat medium, the processing air may pass through the evaporator in the first processing air supply part, and the regeneration air may pass through the condenser in the regeneration air supply part.

The air conditioning system according to a sixth aspect of the present invention, a carbon dioxide removal ratio in the room may be equal to or greater than 30%.

[0010]

The above-described air conditioning systems are provided with a configuration for securing an enthalpy difference between the processing air and the regeneration air or increasing the temperature difference between the processing air and the regeneration air as described above in consideration of an existing or newly constructed building or indoor facilities. Accordingly, carbon dioxide in indoor air is removed and air quality is improved.

[Advantageous Effects of Invention]

[0011]

With the air conditioning system according to the present invention, since an enthalpy difference between processing air and regeneration air is secured, it is possible to improve a carbon dioxide absorption capability of the absorbent of the rotor, to remove carbon dioxide in indoor air, and to improve indoor air quality.

[Brief Description of Drawings]

(such as a pan type humidifier or a steam humidifier).

The air conditioning system 10A according to the first embodiment includes a second processing air supply part 24 that connects the room R to a processing air outlet side of the processing zone 2 of the rotor 1 and a regeneration air discharge part 26 that connects the outside of the room to a processing air outlet side of the regeneration zone 4 of the rotor 1.

In the room R, supply of outdoor air and discharge of air from the room R are performed independently of circulation of the processing air by the first processing air supply part 14 and the second processing air supply part 24. Accordingly, the air pressure or the like of the room R is appropriately adjusted. The flow rate of air or the like in such ventilation is fixed.

The configuration of the air conditioning system 10A shown in Fig. 3 is considered on the assumption that the enthalpy of the outdoor air is lower than the enthalpy of air in the room R as in the winter season. When the temperature of the outdoor air is higher than the temperature of the air in the room R as in the summer, the total heat exchanger 16 of the first processing air supply part 14 is omitted. In the following description, it is assumed that the total heat exchanger 16 of the first processing air supply part 14 is provided and the enthalpy of the outdoor air is lower than the enthalpy of the air in the room R.

[0025]

In the air conditioning system 10A according to the first embodiment, air in the room R is discharged to the first processing air supply part 14, and is supplied as processing air to the total heat exchanger 16 by the first processing air supply part 14. On the other hand, outdoor air introduced from the outside is supplied as regeneration air to the total heat exchanger 16 by the regeneration air supply part 20. In the total heat

[CLAIMS]

[Claim 1]

An air conditioning system comprising:

a rotor that is partitioned into a processing zone including an absorbent of carbon dioxide which is an amine-carrying solid absorbent and allowing the absorbent to absorb carbon dioxide contained in processing air when the processing air flows therein and a regeneration zone allowing carbon dioxide absorbed by the absorbent to be desorbed to regeneration air when the regeneration air flows therein;

a first processing air supply part that is configured to supply air in a room as the processing air to the processing zone;

a second processing air supply part that is configured to supply the processing air passing through the processing zone to the room;

a regeneration air supply part that is configured to supply outdoor air as the regeneration air to the regeneration zone; and

a regeneration air discharge part that is configured to discharge the regeneration air passing through the regeneration zone to outside of the room,

wherein an enthalpy difference between the processing air supplied to the processing zone and the regeneration air supplied to the regeneration zone is equal to or greater than 30 kJ/kg (DA).

[Claim 2]

The air conditioning system according to claim 1, wherein a total heat exchanger and a cooling device are sequentially provided from upstream to downstream in a supply direction in the first processing air supply part,

wherein the regeneration air supply part is configured to share the total heat exchanger, and

wherein the total heat exchanger and a heating device are sequentially provided from upstream to downstream in the supply direction in the regeneration air supply part.

[Claim 3]

The air conditioning system according to claim 1, wherein a cooling device is provided in the first processing air supply part,

wherein a heating device is provided in the regeneration air supply part, and

wherein a part of the air of the room is supplied to the regeneration air supply part upstream from the heating device.

[Claim 4]

The air conditioning system according to claim 1, wherein an air handling unit and a cooling device are provided from upstream to downstream in a supply direction in the first processing air supply part,

wherein a part of air supplied from the air handling unit is supplied to the room,

wherein the remaining part of the air supplied from the air handling unit is supplied to the cooling device, and

wherein a heating device is provided in the regeneration air supply part.

[Claim 5]

The air conditioning system according to claim 1, further comprising a heat pump including a compressor, an expansion valve, a condenser that is configured to condense a heat medium which circulates between the compressor and the expansion valve, and an evaporator that expands the heat medium,

wherein the processing air is configured to pass through the evaporator in the first processing air supply part, and

wherein the regeneration air is configured to pass through the condenser in the regeneration air supply part.

[Claim 6]

The air conditioning system according to claim 1, wherein a carbon dioxide removal ratio in the room is equal to or greater than 30%.