CLAIMS

[Claim 1]

An air composition adjusting device for adjusting composition of air in a target space (5), comprising:

an oxygen separator (41, 61) that separates oxygen from air-to-be-treated to be supplied to the target space (5);

a gas supply path (135) including a high concentration gas supply path (136) for oxygen through which the oxygen separator (41, 61) communicates with the target space (5);

a pump (36, 37) compressing and discharging sucked air; and

a controller (110) that performs an oxygen concentration increasing operation and an oxygen concentration raising operation,

wherein the oxygen concentration increasing operation is an operation of supplying external air compressed by the pump (36, 37) into the target space (5), bypassing the oxygen separator (41, 61); and

the oxygen concentration raising operation is an operation generating, by the oxygen separator (41, 61), a high oxygen concentration gas that has a higher oxygen concentration than before being treated by the oxygen separator (41, 61), and supplying the high oxygen concentration gas to the target space (5) through the high concentration gas supply path (136) for oxygen.

[Claim 2]

An air composition adjusting device for adjusting composition of air in a target space (5), comprising:

an oxygen separator (41, 61) that separates oxygen from air-to-be-treated to be supplied to the target space (5);

a gas supply path (135) including a high concentration gas supply path (136) for oxygen through which the oxygen separator (41, 61) communicates with the target space (5); and

a controller (110) that performs an oxygen concentration raising operation of supplying a high oxygen concentration gas, which has a higher oxygen concentration than air-to-be-treated before being treated by the oxygen separator (41, 61), to the target space (5) through the high concentration gas supply path (136) for oxygen,

wherein the oxygen separator (41, 61) is configured to separate the air-to-be-treated into the high oxygen concentration gas and a low oxygen concentration gas, which has a lower oxygen concentration than external air before being treated,

wherein the gas supply path (135) includes a low concentration gas supply path (137) for oxygen that supplies the low oxygen concentration gas to the target space (5), and a switcher (56, 58) that selectively supplies one of the high oxygen concentration gas and the low oxygen concentration gas to the target space (5), and

wherein the controller (110) is configured to supply the high oxygen concentration gas or the low oxygen concentration gas to the target space (5) by switching the switcher (56, 58).

[Claim 3]

The air composition adjusting device according to Claim 1 or 2,

wherein the oxygen separator (41, 61) includes a separation membrane (85) that separates oxygen from the air-to-be-treated.

[Claim 4]

The air composition adjusting device according to any one of Claims 1 to 3, further comprising:

a carbon dioxide separator (41, 61) that separates carbon dioxide from air-to-be-

treated to be supplied to the target space (5); and a high concentration gas supply path (136) for carbon dioxide through which the carbon dioxide separator (41, 61) communicates with the target space (5),

wherein the controller (110) is configured to be capable performing, in addition to the oxygen concentration raising operation, a carbon dioxide concentration raising operation of supplying a high carbon dioxide concentration gas, which has a higher carbon dioxide concentration than before being treated by the carbon dioxide separator (41, 61), the high carbon dioxide concentration gas being generated by the carbon dioxide separator (41, 61) from air-to-be-treated, to the target space (5) through the high concentration gas supply path (136) for carbon dioxide.

[Claim 5]

The air composition adjusting device according to Claim 4,

wherein the carbon dioxide separator (41, 61) is configured to separate the air-to-be-treated into the high carbon dioxide concentration gas and a low carbon dioxide concentration gas, which has a lower carbon dioxide concentration than air-to-be-treated before being treated,

wherein the gas supply path (135) includes a low concentration gas supply path (137) for carbon dioxide that supplies the low carbon dioxide concentration gas to the target space (5), and a switcher (76, 78) that selectively supplies one of the high carbon dioxide concentration gas and the low carbon dioxide concentration gas to the target space (5), and

wherein the controller (110) is configured to be capable of supplying the high carbon dioxide concentration gas or the low carbon dioxide concentration gas to the target space (5) by switching the switcher (76, 78).

[Claim 6]

The air composition adjusting device according to Claim 3, further comprising:

an adsorber (234, 235) that is provided with an adsorbent, that separates nitrogen, oxygen, and carbon dioxide from air-to-be-treated, and that is capable of generating a low oxygen concentration gas and a high oxygen concentration gas, the low oxygen concentration gas having a higher nitrogen concentration, a lower oxygen concentration, and a lower carbon dioxide concentration than before treatment, and the high oxygen concentration gas having a lower nitrogen concentration, a higher oxygen concentration, and a higher carbon dioxide concentration than before treatment.