CLAIMS:

1. A control system for adjusting air temperature, humidity and water temperature by an outdoor air heat exchanger, comprising an air conditioning apparatus, a heat exchange apparatus and an outdoor air heat exchanger, wherein

the air conditioning apparatus comprises in turn: an air recovery apparatus, an air refrigerating and dehumidifying apparatus, an air supply apparatus and a compressor unit;

the air refrigerating and dehumidifying apparatus and the compressor unit are connected in series to a first heat exchange apparatus to form a refrigerant system;

the outdoor air heat exchanger is connected in parallel to the refrigerant system;

the control system is enabled when indoor humidity is lower than a set value,

i.e.:

when indoor humidity is lower than a set value and water temperature and/or room temperature is lower than a set value, a heat absorption mode of the outdoor air heat exchanger will be enabled, refrigerant in the outdoor air heat exchanger will be inputted to the compressor unit via the outdoor air heat exchanger, the refrigerant in the compressor unit will be converted into a heating medium, and the heating medium will be inputted to the heat exchange apparatus and raise water temperature and/or room temperature through the first heat exchange apparatus; and

when indoor humidity is lower than a set value and water temperature and/or room temperature is higher than a set value, a heat dissipation mode of the outdoor air heat exchanger will be enabled, refrigerant in the outdoor air heat exchanger will perform heat dissipation by outdoor air, and the refrigerant after heat dissipation will be inputted to the heat exchange apparatus and reduce water temperature and/or room temperature via the first heat exchange apparatus.

2. The control system for adjusting air temperature, humidity and water temperature by an outdoor air heat exchanger as described in claim 1, wherein

when indoor humidity is higher than a set value and water temperature and/or room temperature is lower than a set value, a mode of dehumidifying heat pump will be enabled, the refrigerant will absorb heat via the air refrigerating and dehumidifying apparatus and then be inputted to the compressor unit and converted into a heating medium in the compressor unit, and the heating medium will be inputted to a heat exchange apparatus and raise water temperature and/or room temperature via the first heat exchange apparatus;

When indoor humidity is higher than a set value and water temperature and/or room temperature is higher than a set value, a mode of dehumidifying heat pump will be enabled, the refrigerant will reduce water temperature and/or room temperature via the first heat exchange

apparatus and/or the air refrigerating and dehumidifying apparatus, the refrigerant after heat absorption will be inputted to a compressor unit, the refrigerant in the compressor unit will be converted into a heating medium, and the heating medium will be inputted to the outdoor air heat exchanger for heat dissipation by outdoor air.

3. The control system for adjusting air temperature, humidity and water temperature by an outdoor air heat exchanger as described in claim 1, wherein

the first heat exchange apparatus is an air reheating apparatus arranged inside an air conditioning apparatus; and

the refrigerant system is connected in parallel to a second heat exchanger, which is connected to a water system or a water tower.

4. The control system for adjusting air temperature, humidity and water temperature by an outdoor air heat exchanger as described in claim 3, wherein

the control system further comprises a first three-way valve, a second three-way valve, a four-way valve and a liquid storage tank;

the compressor unit is connected to an inlet of the first three-way valve, and an outlet 1 of the first three-way valve is connected to an inlet of the air reheating apparatus; an outlet 2 of the first three-way valve is connected to an inlet of the four-way valve, and the four-way valve comprises a first outlet, a second outlet and a third outlet in turn;

the first outlet of the four-way valve is connected to an outdoor air heat exchanger, the second outlet of the four-way valve is connected to a compressor, and the third outlet of the four- way valve is connected to a water heat exchange apparatus;

the other ends of the outdoor air heat exchanger, the air reheating apparatus and the second heat exchanger are connected to the liquid storage tank respectively;

the liquid storage tank is connected to an inlet of the second three-way valve, an outlet 1 of the second three-way valve is connected to a second expansion valve, the second expansion valve is connected to an inlet of an air refrigerating and dehumidifying apparatus, an outlet of the air refrigerating and dehumidifying apparatus is connected to a compressor unit, or the air refrigerating and dehumidifying apparatus is connected to an air reheating apparatus via a valve; and an outlet 2 of the second three-way valve is connected to a first expansion valve, and the first expansion valve is connected to an outdoor air heat exchanger;

a heat absorption mode of the outdoor air heat exchanger is enabled, refrigerant in the outdoor air heat exchanger is inputted to the four-way valve via the outdoor air heat exchanger, then to the compressor unit via the four-way valve, and converted into a heating medium in the compressor unit, and the heating medium is inputted to an inlet of the first three-way valve, and to the air reheating apparatus via the first three-way valve and/or to the second heat exchanger

connected to the four-way valve; the heating medium after heat exchange flows back to the liquid storage tank via the air reheating apparatus and/or the second heat exchanger, and then flows to the outdoor air heat exchanger via the second three-way valve.

5. The control system for adjusting air temperature, humidity and water temperature by an outdoor air heat exchanger as described in any of claims 1~4, wherein the air conditioning apparatus is provided with a water cooling system before or after air treatment of the refrigerant system.

6. The control system for adjusting air temperature, humidity and water temperature by an outdoor air heat exchanger as described in any of claims 1~4, wherein the air conditioning apparatus is provided with a water heating system before or after air treatment of the refrigerant system.

7. The control system for adjusting air temperature, humidity and water temperature by an outdoor air heat exchanger as described in any of claims 1~4, wherein the air conditioning apparatus is provided with a water cooling system before air treatment of the refrigerant system, and is provided with a water heating system after air treatment of the refrigerant system.

8. The control system for adjusting air temperature, humidity and water temperature by an outdoor air heat exchanger as described in any of claims 3~4, wherein the second heat exchanger is connected in series to a third heat exchanger, and the third heat exchanger is connected to chilled water.

9. The control system for adjusting air temperature, humidity and water temperature by an outdoor air heat exchanger as described in claim 8, wherein the air conditioning apparatus is provided with a water cooling system before air treatment of the refrigerant system, a third three- way valve is arranged at an inlet of the water cooling system, and an outlet 2 of the third three- way valve is connected to an inlet of the third heat exchanger; a fourth three-way valve is arranged at the inlet of the third heat exchanger, the outlet 2 of the third three-way valve is connected to an inlet of the fourth three-way valve, and an outlet 2 of the fourth three-way valve is connected to chilled water.