

ABSTRACT

An air conditioning system capable of treating a conditioned space by treating outdoor air from outside the conditioned space and treating air returned from inside the conditioned space, and mixing the outdoor air with the returned air to form supply air for the conditioned space, the air conditioning system including: • an outdoor air latent cooling treatment stage and a return air sensible cooling treatment stage, and • an air mixer for mixing outdoor air with return air to form the conditioned space supply air; wherein the outdoor air latent cooling treatment stage includes a dehumidification evaporator and the return air sensible cooling treatment stage includes a sensible evaporator, both evaporators being coupled to a direct expansion refrigeration circuit, and wherein the dehumidification evaporator thermal capacity is regulated in response to conditioned space humidity and the sensible evaporator thermal capacity is regulated in response to conditioned space dry bulb temperature.

Figure 1