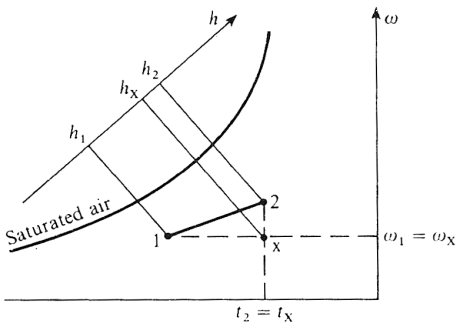
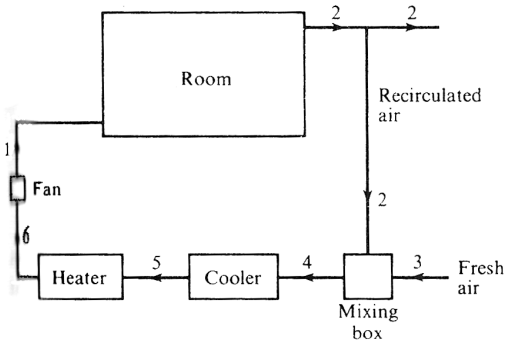
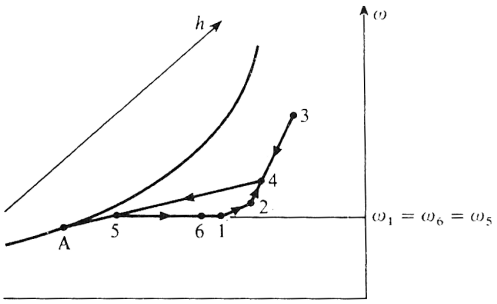
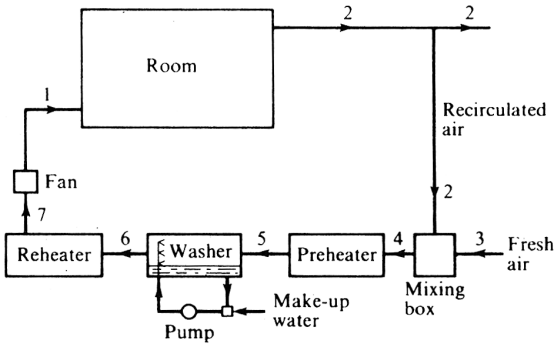
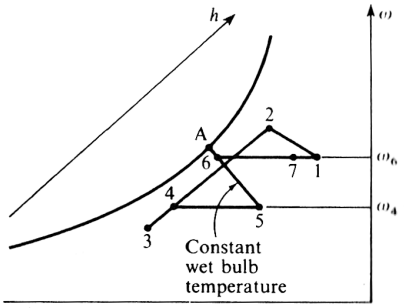
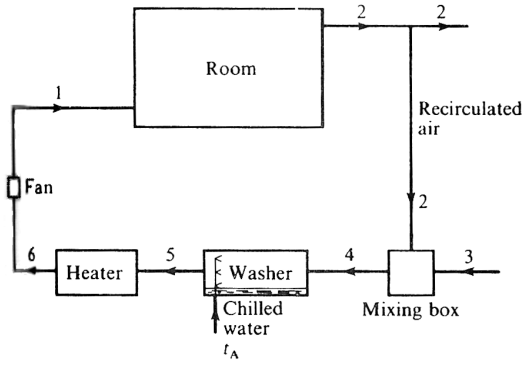

h
ω
$h_2$
$h_X$
$h_1$
Saturated air
2
1
X
$\omega_1 = \omega_X$
$t_2 = t_X$

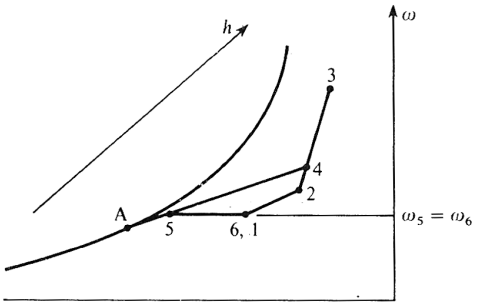

Room
Recirculated air
1
Fan
6
Heater
5
Cooler
4
3
Fresh air
Mixing box
2
2
2

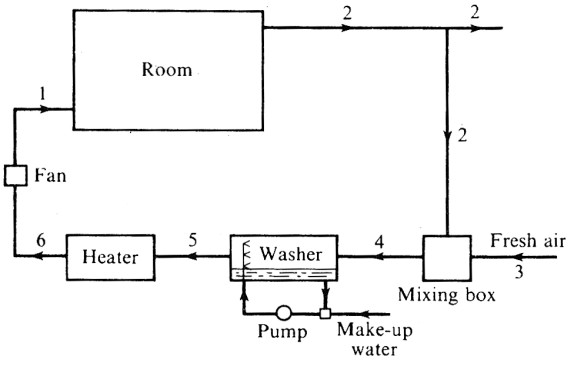

h
ω
3
4
2
A
5
6
1
$\omega_1 = \omega_6 = \omega_5$

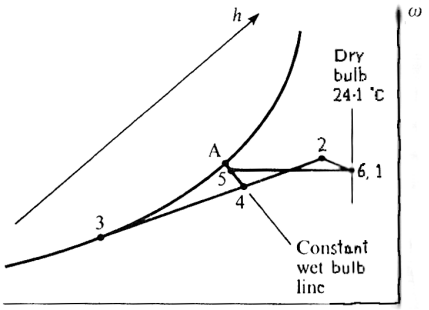

Room
Recirculated air
1
Fan
7
Reheater
6
Washer
5
Preheater
4
3
Fresh air
Mixing box
Make-up water
Pump
2
2
2


h
ω
A
2
6
7
1
$\omega_6$
4
$\omega_4$
5
3
Constant wet bulb temperature


Room
Recirculated air
1
Fan
6
Heater
5
Washer
4
3
Chilled water
$t_A$
Mixing box
2
2
2

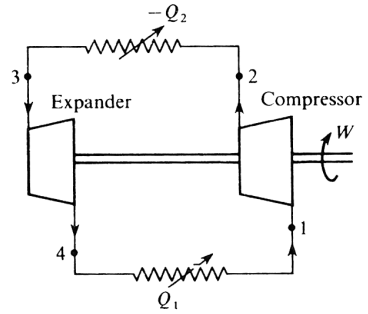

h
ω
3
4
2
A
5
6, 1
$\omega_5 = \omega_6$

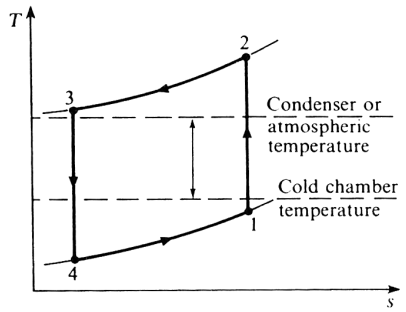

Room
1
Fan
6
Heater
5
Washer
4
Fresh air
3
Mixing box
Pump
Make-up water
2
2
2


h
ω
Dry bulb 24·1 °C
A
2
5
6, 1
4
3
Constant wet bulb line

constant pressure gas refrigeration system

$$\frac{T_1}{T_2} = \left(\frac{p_1}{p_2}\right)^{(\gamma-1)/\gamma}$$



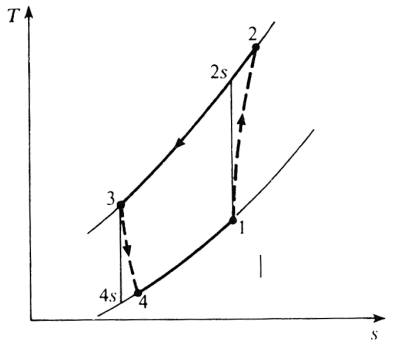

$$W_{1\text{-}2} = (h_2 - h_1) \quad \text{and} \quad W_{3\text{-}4} = -(h_3 - h_4)$$

Therefore for a perfect gas

$$W_{1\text{-}2} = c_p(T_2 - T_1) \quad \text{and} \quad W_{3\text{-}4} = -c_p(T_3 - T_4)$$

The refrigerating effect is

$$Q_1 = (h_1 - h_4) = c_p(T_1 - T_4) \quad \text{for a perfect gas}$$




air-cooling system of a jet aircraft