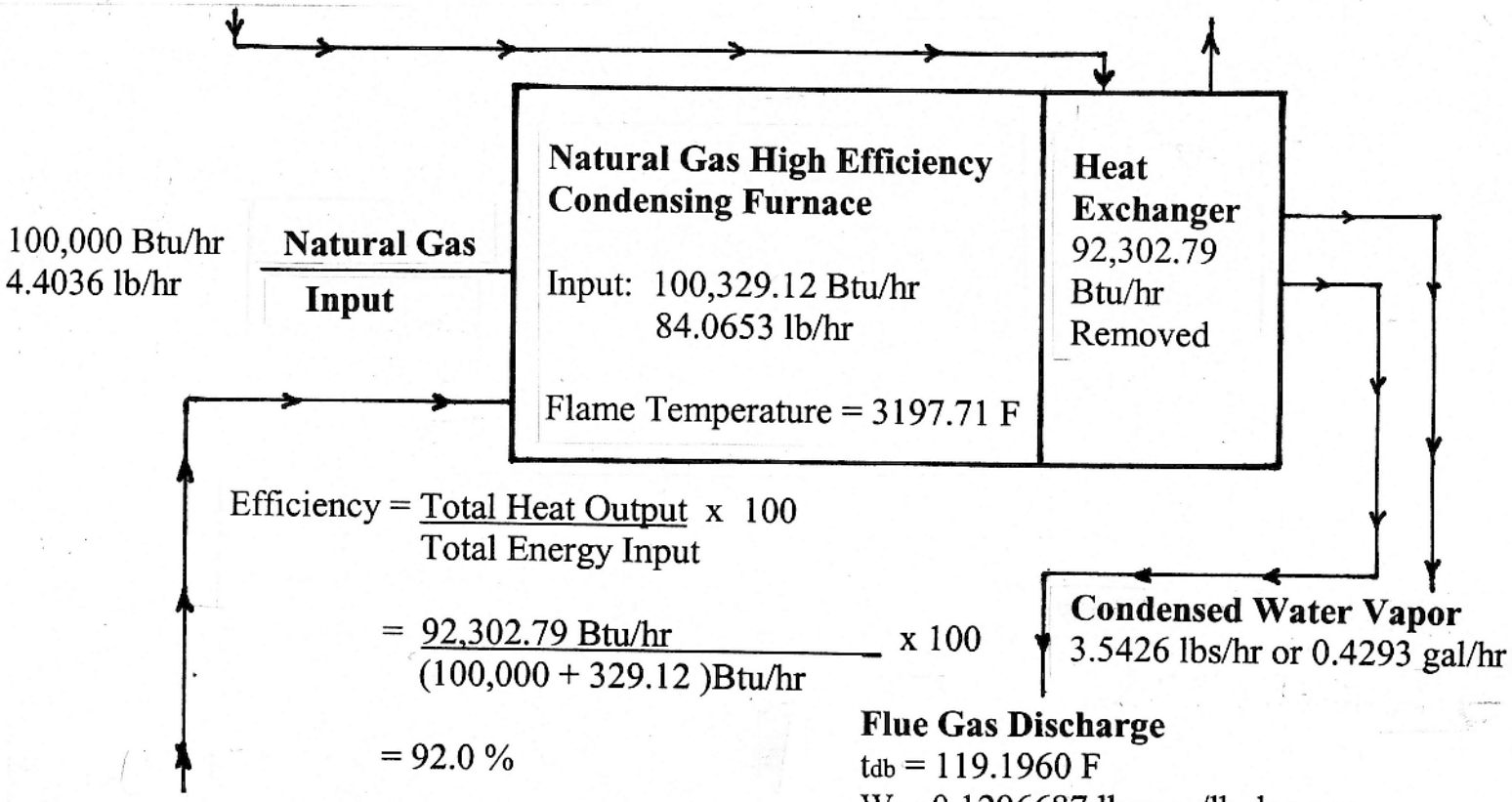
Furnace Air Intake To Be Heated
t_{db} = 70 F
RH = 35 %
W = 0.0054077 lb w.v./lb d.a.
ACFM = 1250
SCFM = 1244.0472
Dry Air = 5568.1017 lb d.a./hr
Water Vapor = 30.1109 lb d.a./hr
Total = 5598.2126 lb/hr
$Q_{sensible}$ = 50,759.21 Btu/hr
Q_{latent} = 32,891.05 Btu/hr
Q_{total} = 83,650.26 Btu/hr

Heated Air Leaving The Furnace
t_{db} = 138.3641 F
RH = 4.5752 %
W = 0.0054077 lb w.v./lb d.a.
ACFM = 1411.3365
SCFM = 1244.0472
Dry Air = 5568.1017 lb d.a./hr
Water Vapor = 30.1109 lb w.v./hr
Total = 5598.2126 lb/hr
$Q_{sensible}$ = 142,189.24 Btu/hr
Q_{latent} = 33,763.81 Btu/hr
Q_{total} = 175,953.05 Btu/hr



Efficiency = $\frac{\text{Total Heat Output}}{\text{Total Energy Input}} \times 100$

$= \frac{92{,}302.79 \text{ Btu/hr}}{(100{,}000 + 329.12) \text{ Btu/hr}} \times 100$

= 92.0 %

Combustion Air Intake
t_{db} = 40 F
RH = 40 %
W = 0.00205497 lb w.v./lb d.a.
ACFM = 16.7460
SCFM = 17.7026
Dry Air = 79.4983 lb d.a./hr
Water Vapor = 0.1634 lb w.v./hr
Total = 79.6617 lb/hr
$Q_{sensible}$ = 152.80 Btu/hr
Q_{latent} = 176.32 Btu/hr
Q_{total} = 329.12 Btu/hr

10 % Excess Air

Flue Gas Discharge
t_{db} = 119.1960 F
W = 0.1296687 lb w.v./lb dry gas
CO2 = 11.7888 lb/hr
N2 = 61.0971 lb/hr
O2 = 1.6725 lb/hr
SO2 = 0.0001 lb/hr
SO3 = 0.0000 lb/hr
Argon = 0.0934 lb/hr
Dry Gas = 74.6518 lb/hr
Water Vapor = 5.8709 lb/hr
Wet Flue Gas = 80.5227 lb/hr

Acid Dew Point Temperature = 178.9587 F

Dry Gas Heat = 1,569.24 Btu/hr
Water Vapor Heat = 6,457.08 Btu/hr
Total Heat = 8,026.32 Btu/hr