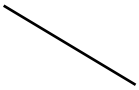

AIRFLOW TECHNICAL EVALUATION FORM

United Technologies
Climate | Controls | Security

ELECTRIC HEAT TEMP RISE METHOD

1 PHASE

$$CFM = \frac{(Volts)(Amps)(3.413)}{1.08(\Delta T)}$$

Volts = _____ Amps = _____

†Sup. Air Temp. ____°F - Ret. Air Temp.____°F = ΔT

cfm = _____ft³/min

3 PHASE

$$CFM = \frac{(Volts)(Amps)(5.91)}{1.08(\Delta T)}$$

Volts = _____ Amps = _____

†Sup. Air Temp. ____°F - Ret. Air Temp.____°F = ΔT

cfm = _____ft³/min

TEMPERATURE VS. ENTHALPY

Wet-Bulb (F)	Btu/LB	Wet-Bulb (F)	Btu/LB	Wet-Bulb (F)	Btu/LB	Wet-Bulb (F)	Btu/LB	Wet-Bulb (F)	Btu/LB	Wet-Bulb (F)	Btu/LB
40	15.23	**48**	19.21	**56**	23.84	**64**	29.31	**72**	35.83	**80**	43.69
41	15.7	**49**	19.75	**57**	24.48	**65**	30.06	**73**	36.74	**81**	44.78
42	16.17	**50**	20.3	**58**	25.12	**66**	30.83	**74**	37.66	**82**	45.9
43	16.66	**51**	20.86	**59**	25.78	**67**	31.62	**75**	38.61	**83**	47.04
44	17.15	**52**	21.44	**60**	26.46	**68**	32.42	**76**	39.57	**84**	48.22
45	17.65	**53**	22.02	**61**	27.15	**69**	33.25	**77**	40.57	**85**	49.43
46	18.16	**54**	22.62	**62**	27.85	**70**	34.09	**78**	41.58		
47	18.68	**55**	23.22	**63**	28.57	**71**	34.95	**79**	42.62		

INDOOR COIL (EVAPORATOR)

	ENTERING	LEAVING	DIFFERENCE
W.B.			
Enthalpy			Δh = Btu/LB

EVAPORATOR CAPACITY

BTUH = 4.5 x cfm x Δh

OUTDOOR COIL (CONDENSOR)

	ENTERING	LEAVING	DIFFERENCE
(Air) D.B.			ΔT = °F

CONDENSOR CAPACITY

BTUH = 1.10 x COND. Cfm x ΔT

Due to varying field condidtions, a tolerance of 10% must be expected when comparing test data to actual performance.

OTHER METHODS TO CHECK AIRFLOW

Belt Driven Blowers

Blower Speed = _____rpm
Dimater of Pulley = _____in
Of Turns = _____Open
Static Pressure = _____ w.c.

Refer to Product Data Sheets for rpm vs static Presssure airflow charts.

Total External Method

Ret. Static + Sup. Static = Total External Static

Use the Total External Static in conjunction with the "Blower Performance" data in the Product Specification Sheets or the unit's "Tech Label".

NOTE: 350-400 CFM PER TON

Furnace cfm = $\frac{\text{btu output}}{1.08(\Delta T)}$

NOTES

INDOOR DRY BULB ADJUSTMENT

Use equations below in conjunction with unit's "Tech Label" information for total and sensible capacities @ indoor dry bulbs other than 80°F entering coil.

Sensible Capacity at Indoor db LOWER than 80°F = $\left((\text{MBh x S/T}) - \frac{\text{(80-Indoor db) x 835 x Indoor cfm}}{1000}\right)$

Sensible Capacity at Indoor db HIGHER then 80°F= $\left((\text{MBh x S/T}) + \frac{\text{(Indoor db-80) x 835 x Indoor cfm}}{1000}\right)$

† Temperature rise is equal to the supply air temp. minus the return air temp. at steady state operation. The supply air temp. should be measured away form the line of sight of the heat exchanger.

*In small ducts or where traverse operations are otherwise impossible, an accuracy of ±5% can frequently be achieved by placing Pitot tube or Anemometer in center of duct. Determine velocity from the reading, then multiply by 0.9 for an approximate average velocity.