PLENUM BOX SIZING FOR AIR HANDLING UNIT (AHU)

Plenum box sizing for air handling unit (AHU):

Q = V x A --------- (1)

- Q = flow rate (Cubic feet per minute) >> CFM
- V = Velocity (feet per minute) >> ft/min
- A = Area of plenum box (Square feet) >> ft2

Velocity for Air handling unit (AHU) is **800 ft/min**

Let's say according to our calculated heat load tonnage is = 8 TR

As rule of thumb 1TR needs 400 CFM

So, 8 TR needs = 8 x 400 = 3200 CFM

As per equation 1:

- A = Q/V
- A = 3200/800
- A = 4 ft2

Area of Plenum box = W x H --------- (2)

According to site condition we have to assume height of plenum box and try to find width

Assume H = 1.6 ft

So, using values in equation 2:

Width of plenum box

W = Area of plenum box / height of plenum box = A/H

W = 4/1.6

PLENUM BOX SIZING FOR AIR HANDLING UNIT (AHU)

Width of plenum box = 2.5 ft

Depth of plenum can be calculated by using following equation:

D = 2.5 x d --------- (3)

Where d = diameter of fan blower of AHU

Assume d = 12”

Using equation 3:

D = 2.5 x 12

D = 30” = 2.5 ft