Measurements/Geometry: Administrative Assistant & Sales
Midgley-Huber, Inc.
Job Description: Count all equipment we sell from commercial building plans. Figure the cost of supplying the equipment, profit waived, add freight expense and quote to contractors.
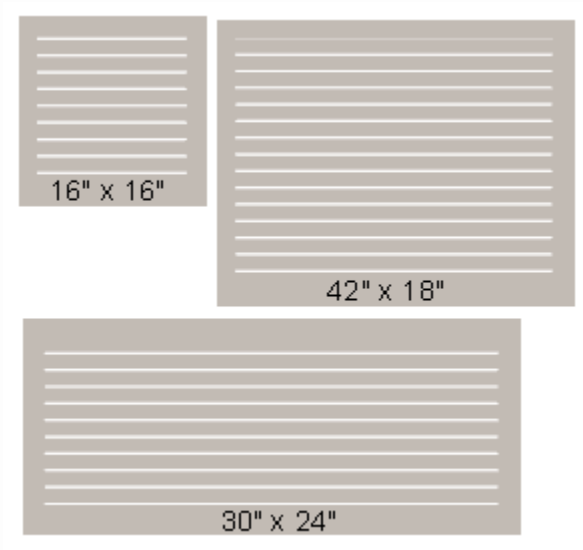
Problem:
#1: The following louver order needs to have a Kynar finish put on at the factory. The added price is $600 minimum or $7.50 a square foot.

17 each - 16" x 16"
2 each - 42" x 18"
3 each - 30" x 24"

What cost will be added to the order for the Kynar finish?

#2: To pick the right size of exhaust fan for a room you must first decide how many air changes per hour you want. One air change is equal to the volume of air in the room. Exhaust fans are rated by how many cubic feet per minute (CFM) they move. How many CFMs of air must an exhaust fan move if we want 5 air changes per hour in a room measuring 24' x 24' with a 12' high ceiling?
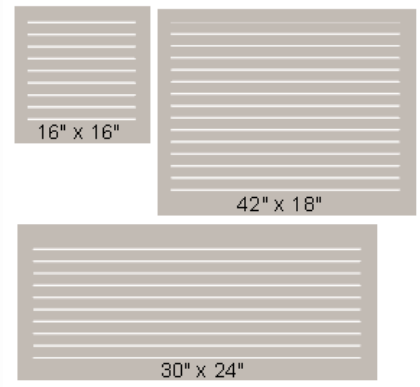

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Solution:
#1: 16" x 16" = 256 sq.in. x 17 pieces = 4,352 sq. in.
42" x 18" = 756 sq. in. x 2 pieces = 1,512 sq. in.
30" x 24" = 720 sq. in. x 3 pieces = 2,160 sq. in.
Total: = 8,024 sq. in.

12" x 12" = 144 in. or 1 sq. ft.
8024 sq. in. ÷ 144 in. = 55.72 sq. ft.
55.72 sq. ft. x $7.50 = $417.90

Since this amount is under the $600 minimum, $600 will be added to the cost.

#2: Volume of room = 24' x 24' x 12' = 6912 ft³

Volume of air moved in 5 air changes per hour = 6912 ft³ x 5/hr = 34,560 ft³/hr.

Fan rating in CFM = 34,560 ft³/hr x (1 hr ÷ 60 min.) = 576 CFM