



HOW TO GROW WITH THE FUTURE

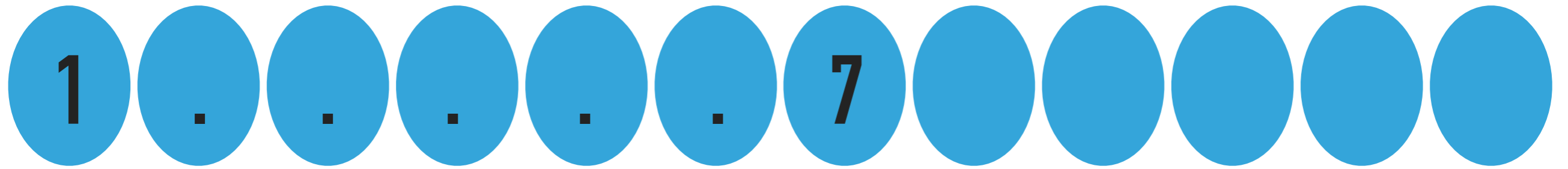
**REPLACEMENT
OF THE OLD
VENTILATION SYSTEM**



Photo from indiamart.com

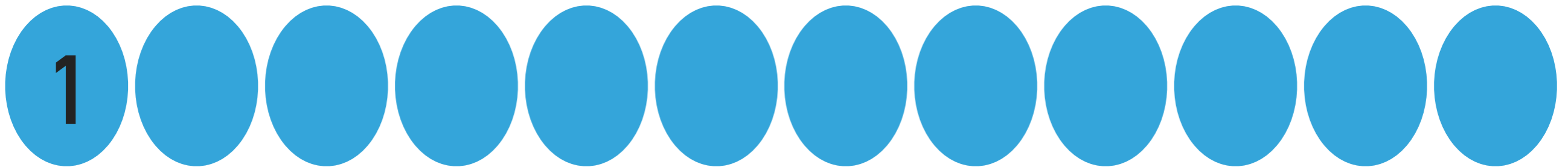
**REPLACE YOUR OLD VENTILATION SYSTEM
AND SAVE NOT ONLY MONEY BUT ALSO WORRIES**





OVERVIEW

1. Introduction
2. A story from sweden
3. Comparison old and new
4. Retrofit
5. Collateral benefits
6. Financial calculation
7. Conclusion



INTRODUCTION TO FANS IN AIR HANDLING UNITS (AHU)

1.

Delay from science to work life

2.

Ventilation is 1 of the delayed items

3.

Much energy is wasted

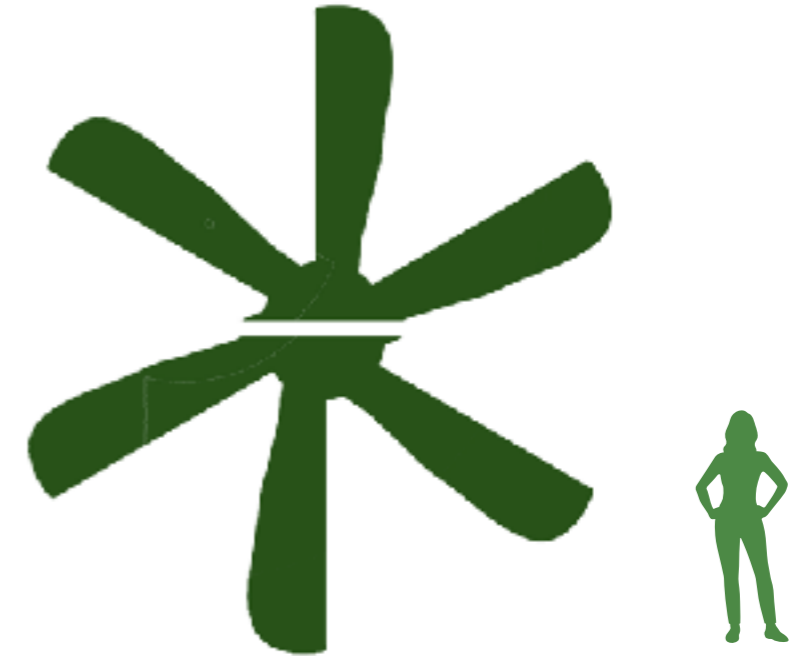
4.

How much % Indian energy in fans?

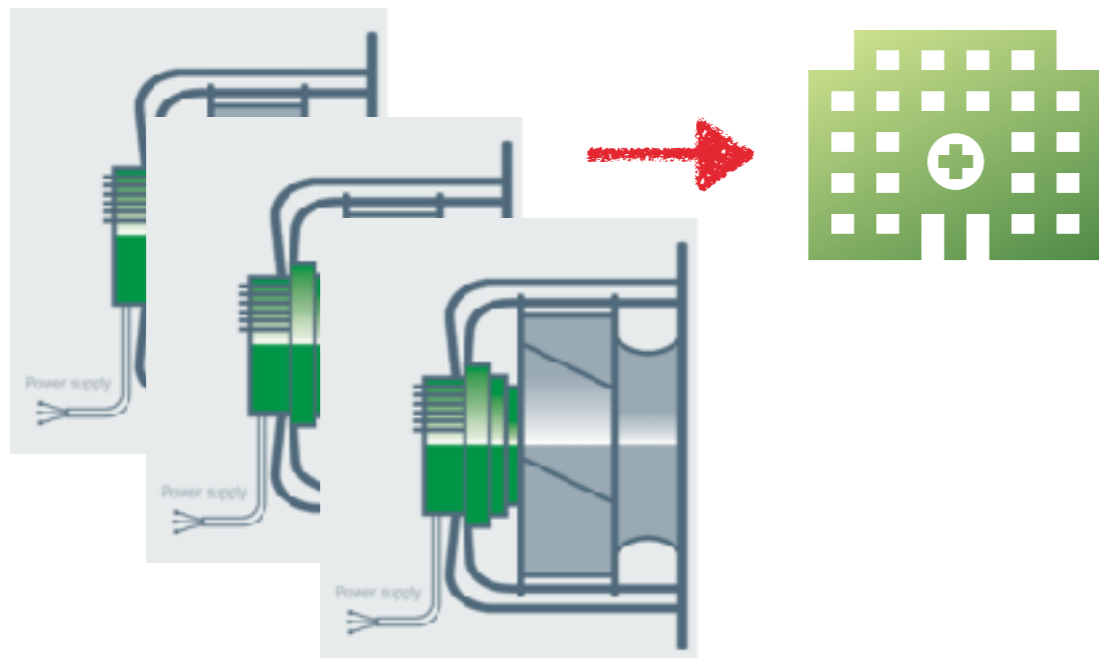
A STORY FROM SWEDEN



Hospital between Stockholm and Göteborg



Main fan was broken - ventilation interrupted



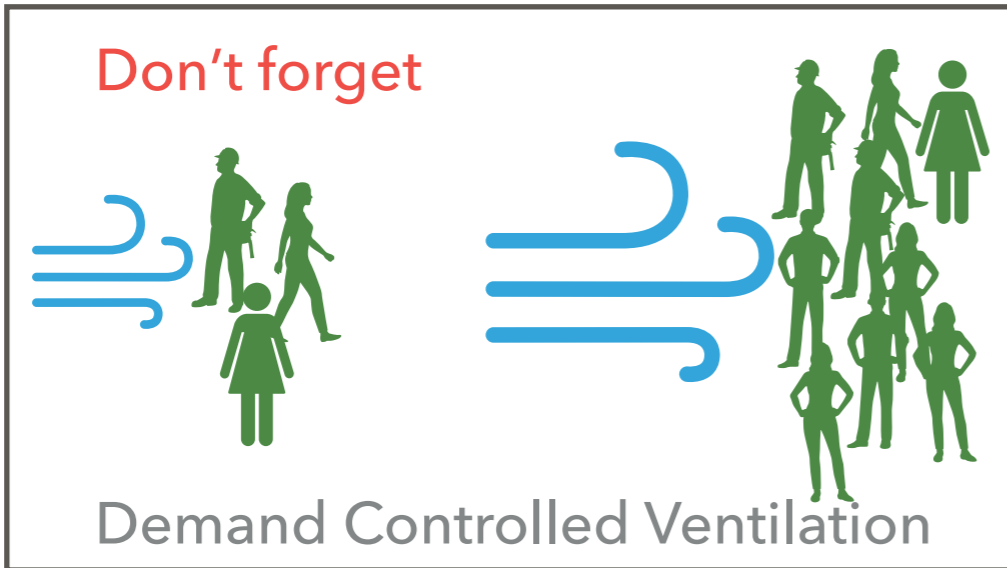
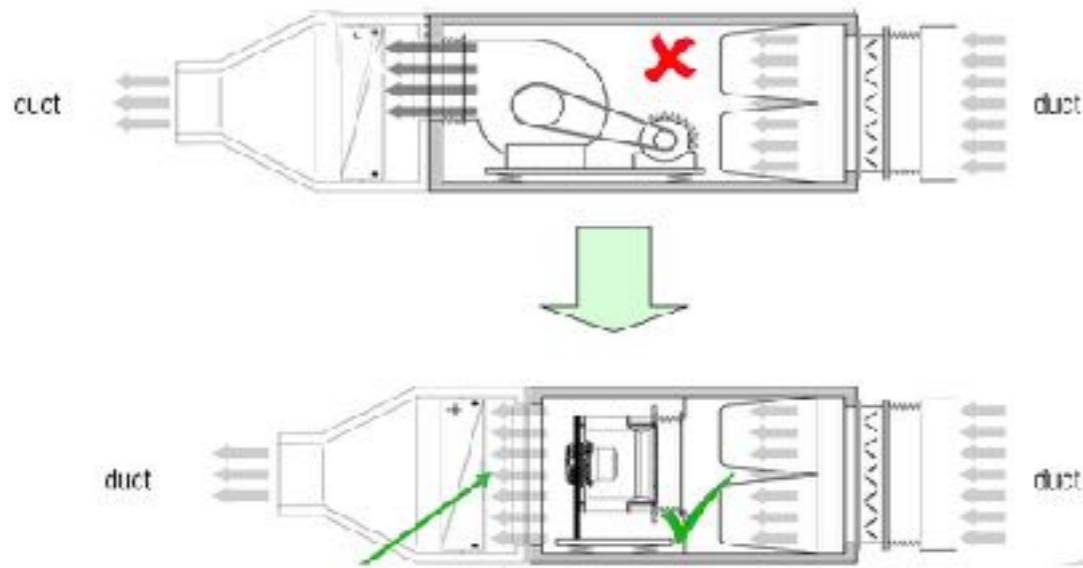
Replaced by 15 plug-in fans in one array



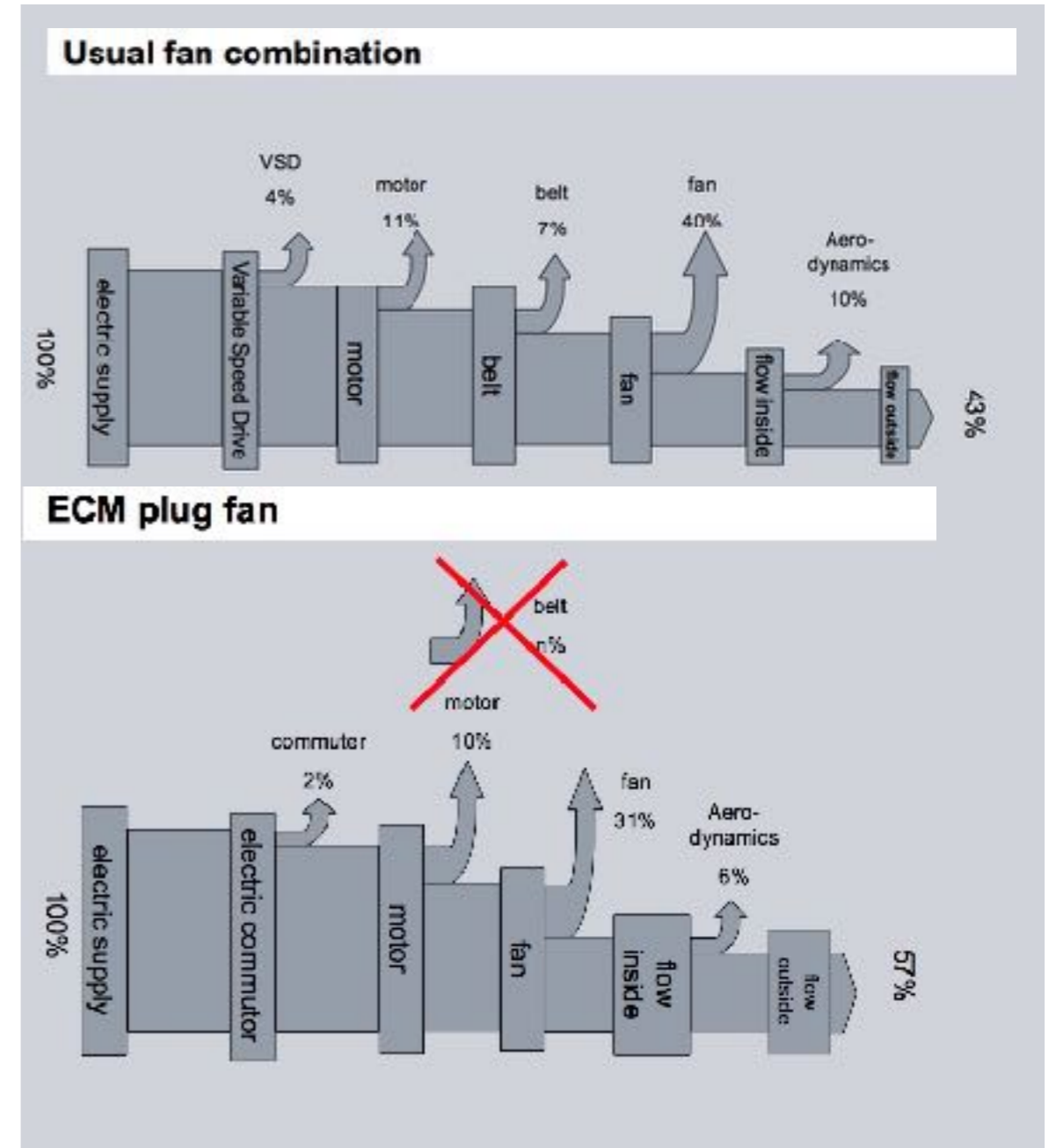
End result: much better performance

COMPARISON OLD AND NEW

COMPARISON OF CONFIGURATION



COMPARISON OF LOSSES

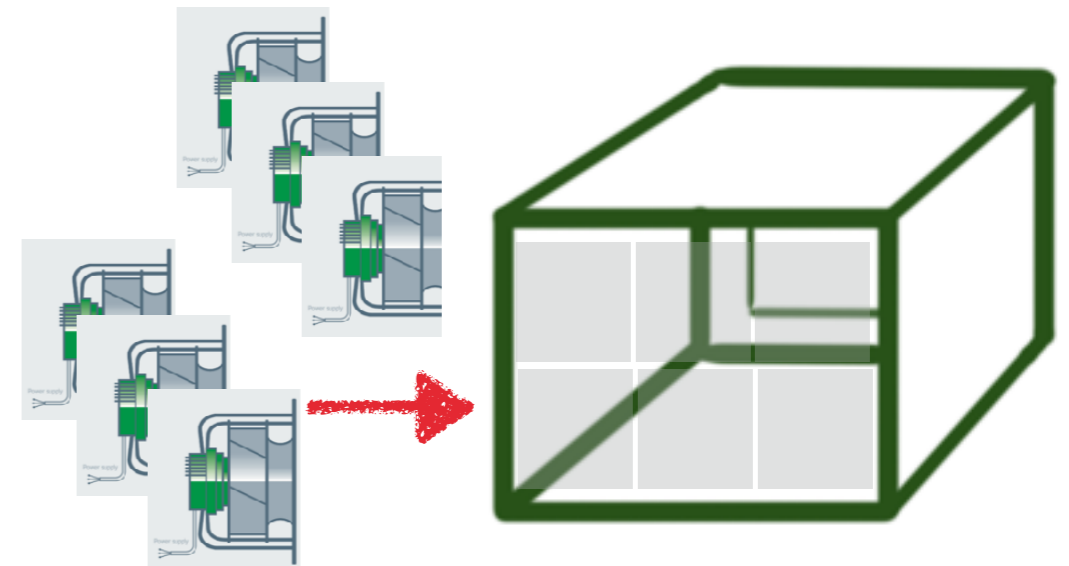
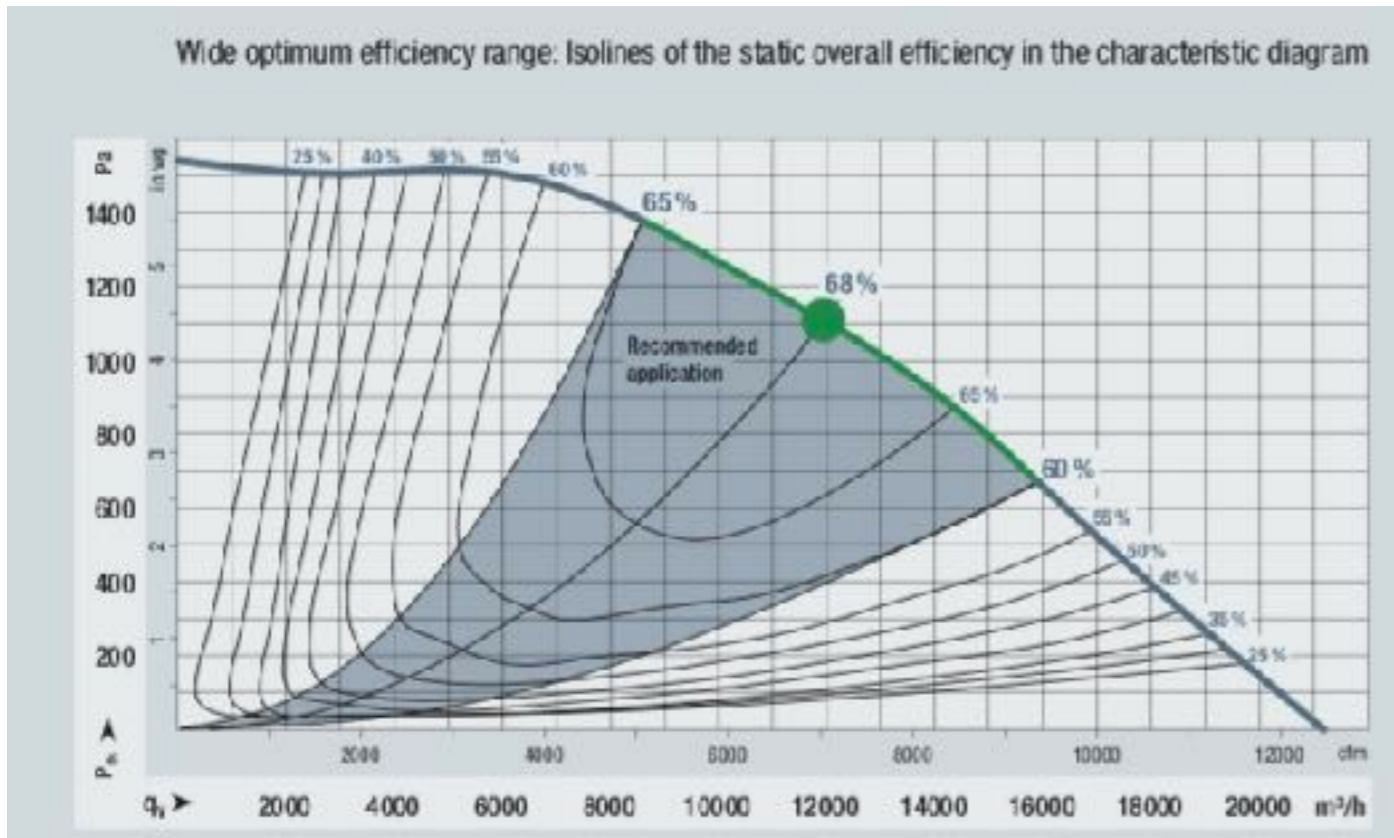
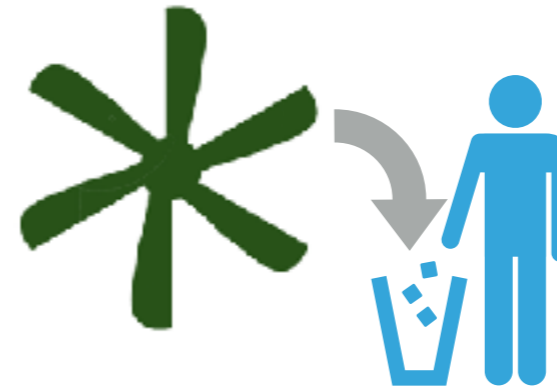


RETROFIT

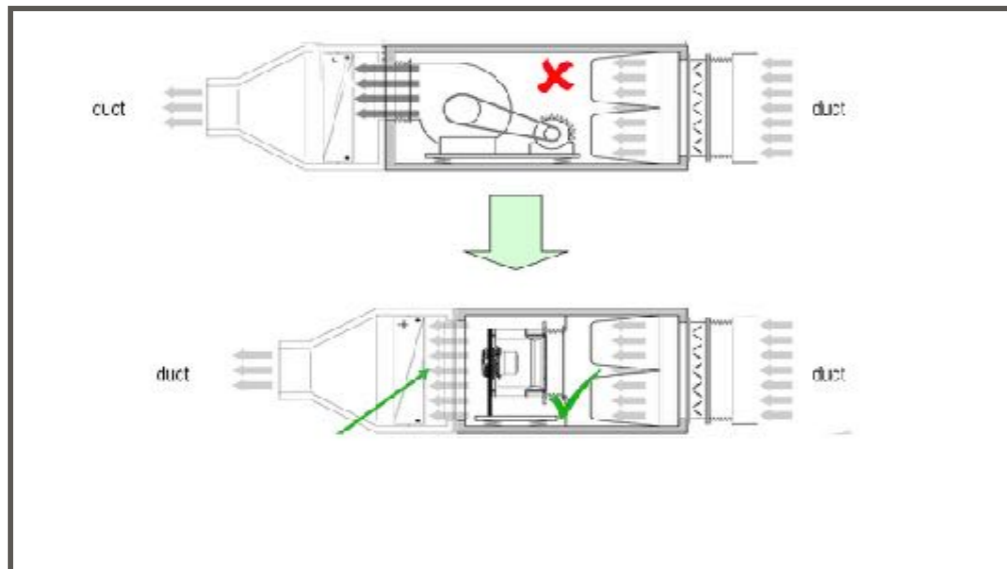


Was an urgency

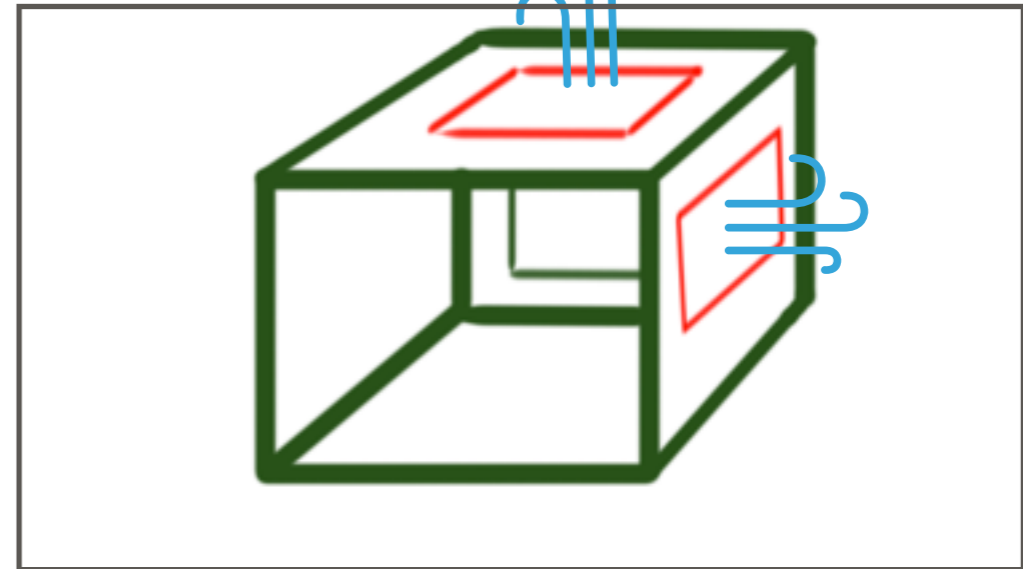
In normal cases, look ahead!



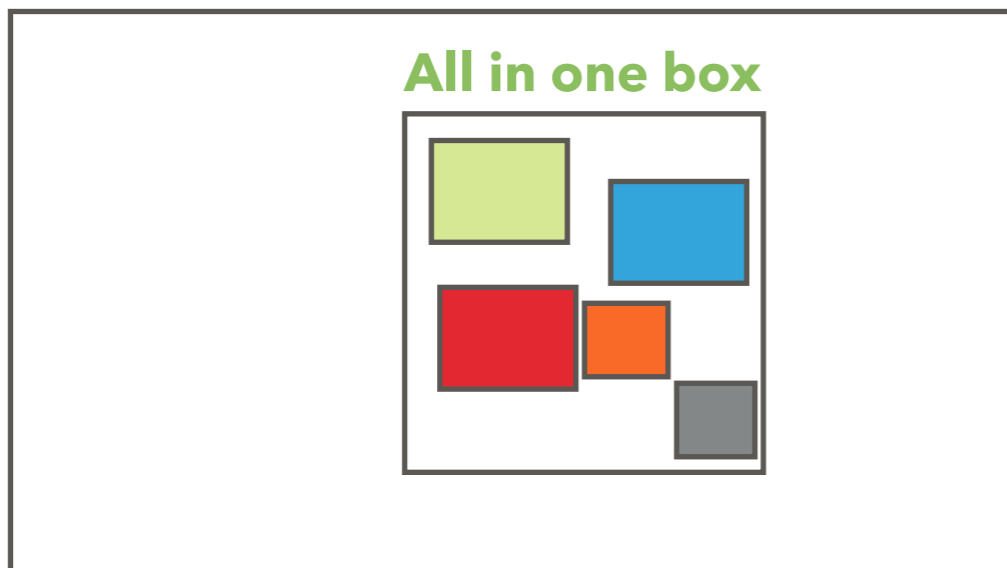
COLLATERAL BENEFITS



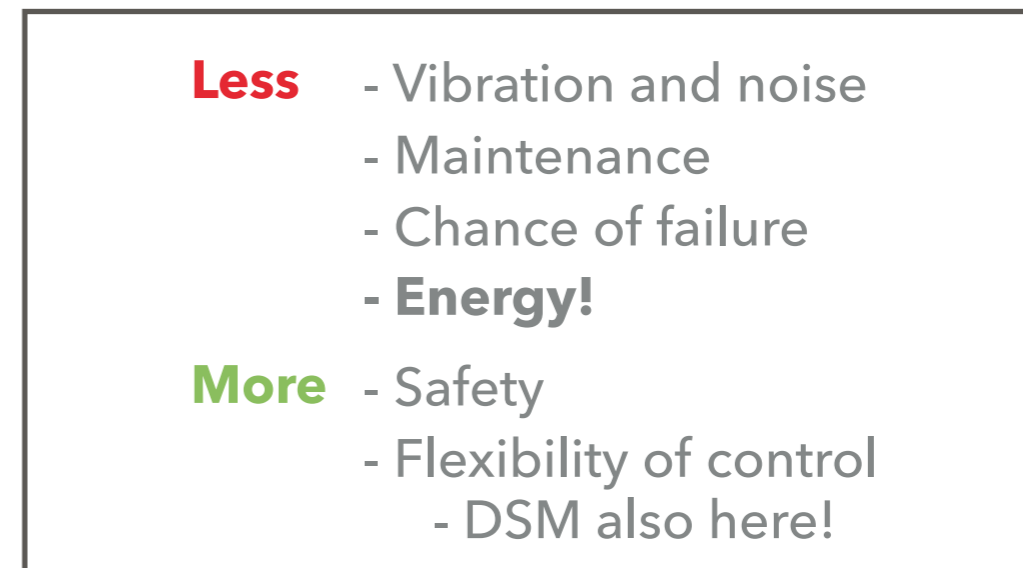
More space for other equipment (HX)



Flexible to attach ducts in 5 walls, not 1



Easy system design and build in



Less

- Vibration and noise
- Maintenance
- Chance of failure
- **Energy!**

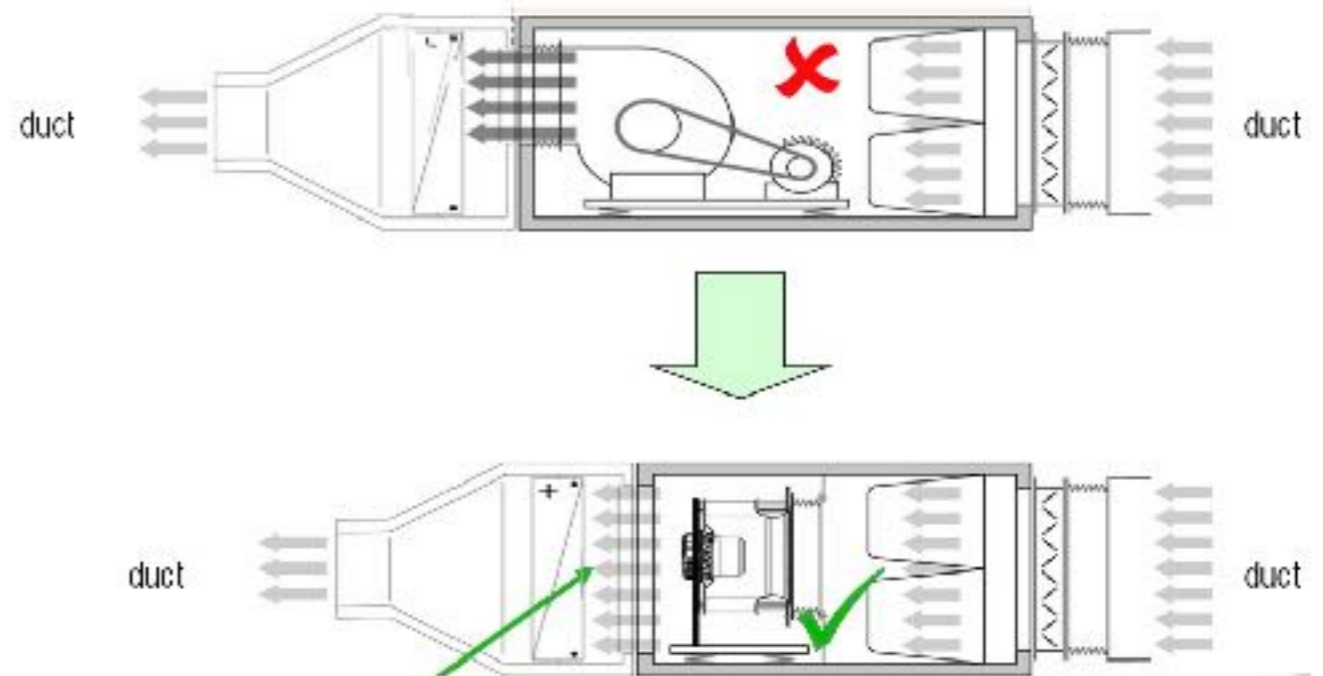
More

- Safety
- Flexibility of control
- DSM also here!

Other collateral benefits

FINANCIAL CALCULATION

Old system	
Lifetime (y)	20
Age (y)	17
Replace value (\$)	20,000
Residual value (\$)	3,000
Consumption (kW)	10
Hour per year	5,000
Tariff (avg. \$/kWh)	0.15
Energy cost (\$/y)	7,500
New system	
Lifetime (y)	20
Cost (\$)	22,000
Net investment	5,000
Consumption (% of old)	67%
Consumption (kW)	6.7
Energy cost (\$/y)	5,025
Savings (\$/y)	2,475
Ratio ResidValue/savings	1.2
Discount value per year	10%
Discounted savings	19,567
Savings to Investment Ratio (SIR)	3.9



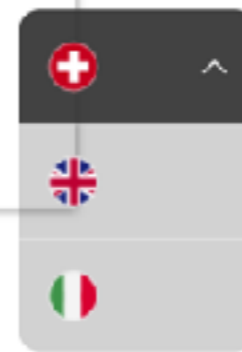
$$(20 \times (\text{Savings/year}) = 49,500)$$



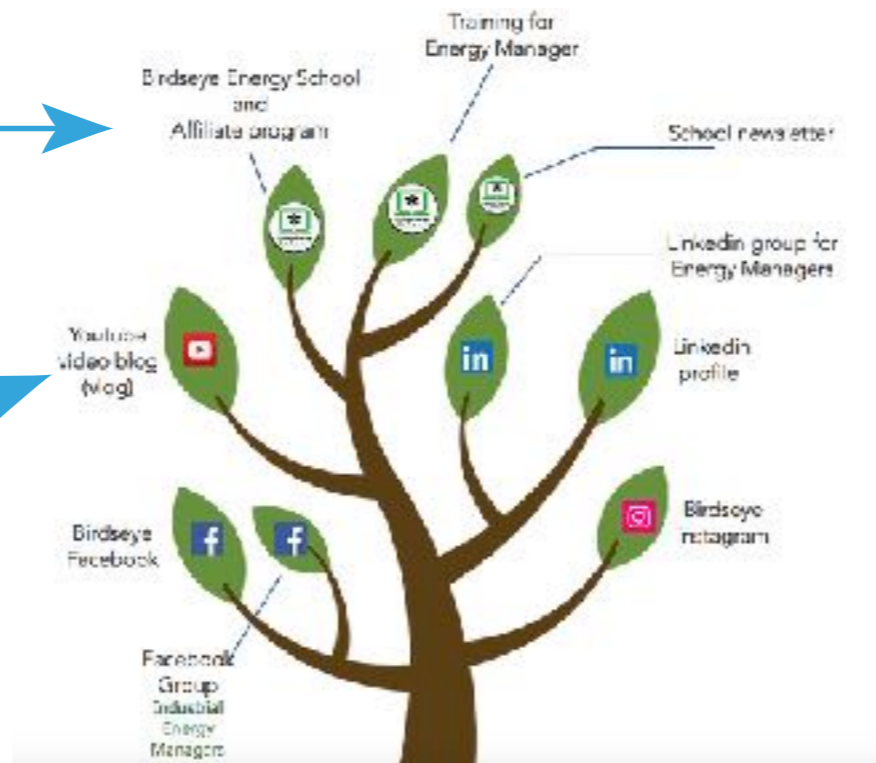
CONCLUSION

- ▶ Info on nnvasen@birdseye-ec.com and website (see below)
- ▶ The simulation for an AHU replacement is on my **Newsletter**

www.birdseye-ec.com



 YouTube blogs



Newsletter



TEXT
