



☾ Potential for improvement of combustions conditions in practice

BlueChimney / Chimney Sweeper
Morten Bjørklund



The challenges in the coming years...

Studies in august 2015 shows that PM 10 og PM 2,5 emissions in Copenhagen is reduced by 78 % compared to 2010 emissions

New knowledge tells us what to focus on:

- Clean wood
- Briquettes
- Humidity
- Woodlog sizes
- Woodlog numbers
- Bark
- Top Down ignition
- Importance of better combustion
- Replacing old stoves with new ones
- Better chimneys – draft, dilution and dispersion



The challenges in the coming years...

Brændeovne	Alder	PM Index	NMVOC Index	PAH-4 Index
Ældre ovne	→ 1990	100	100	100
DS-887 testet ovne	1990 - 2005	100	83	100
Opfylder brændeovns-bekendtgørelsen 2008	2005 →	75	21	35
Svanemærket ovne	2005 →	29	10	18
Reduktion fra "Ældre ovne"	-	71 %	90 %	82 %

Reference : Miljøprojekt 1324, 2010. Emissioner fra træfyrede brændeovne og -kedler



What opportunities are there to achieve...



“We need all existing chimneys to act like the chimney in the laboratory”



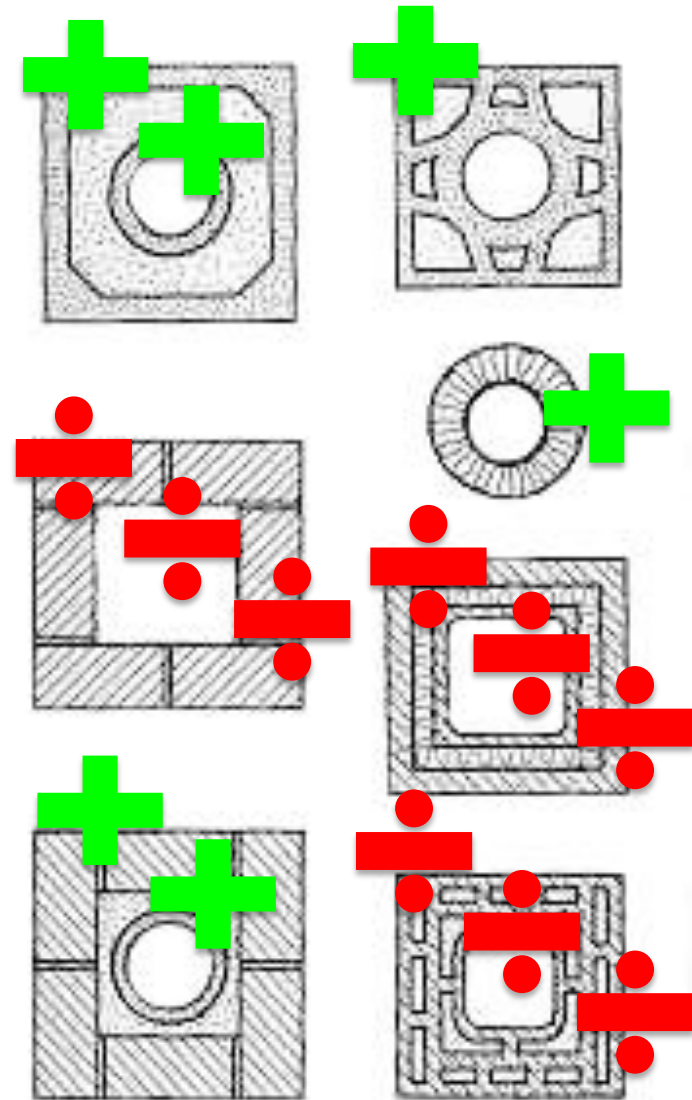
What opportunities are there to achieve...

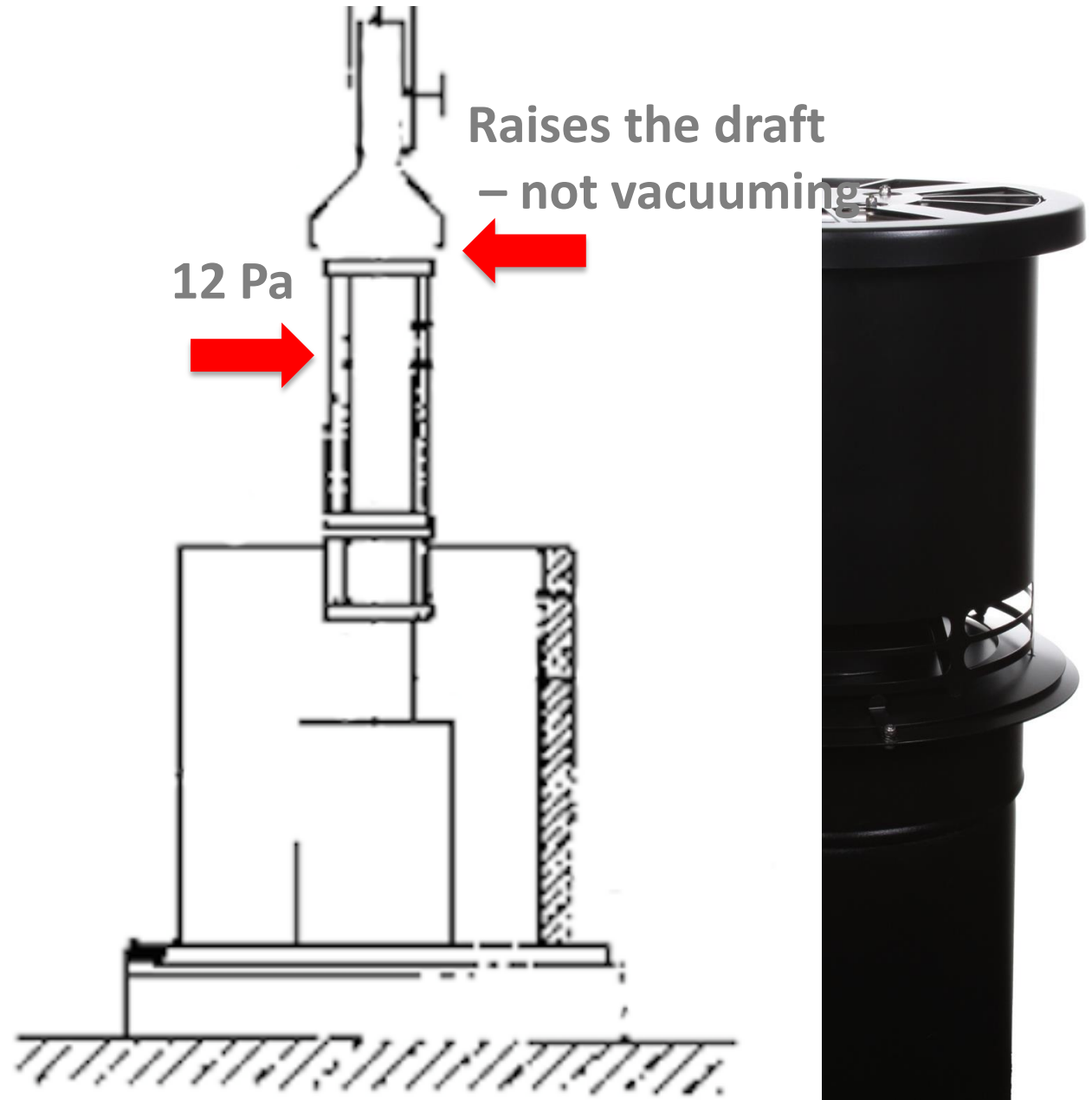
Denmark has 700.000 chimneys

25% is malfunctioning = 175.000

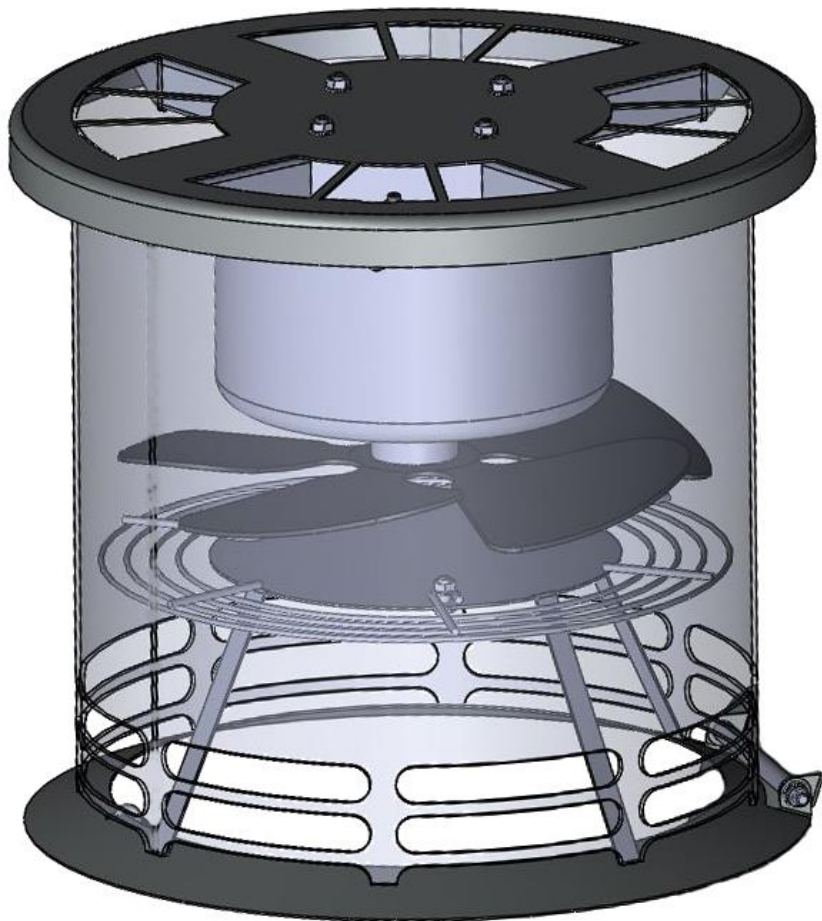
Not high enough - below 5 meter

1/3 bricks or bad chimney systems





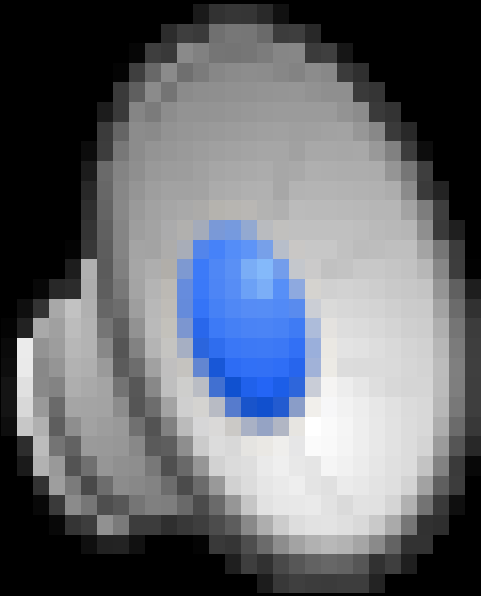
Immission Effect



Dispersion
5-10 x (rating)

Total immission
effect: 50-250 x

Dilution
10-25 x (tested)



What is our challenges in the coming years, to improve the real emissions from residential wood combustion?

It is necessary to identify the opportunities that solve the most important problems with emissions in residential areas where woodstoves is being used.

Which opportunities are there to achieve the same results in the real world, as we have in test laboratories?

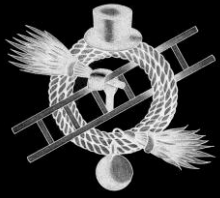
It is possible through campaigns to change the house owners operating behavior and there are technical solutions which mainly can bring the best conditions from the test lab into the wood stoves in people's houses.

"What you buy – is what you get"

Presentation of BlueChimney

which I think could be a serious proposal on how we can improve combustion, minimize emissions / imissions and reduce odours from wood stove chimneys in residential areas.





Thank you for listening

