



LUNDS
UNIVERSITET



CHALMERS
UNIVERSITY OF TECHNOLOGY

Responses to the covid-19 pandemic – summary of a questionnaire survey

Lars Ekberg

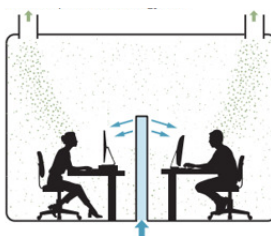
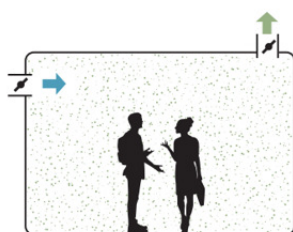
<https://www.buildingspostcorona.se/>

Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers



Factors influencing disease transmission indoors

Which factors are important?



III. Morawska, L. et al. (2021)

Which can we influence successfully?

Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers



Questionnaire to the real estate sector

Impact of actions implemented as a response to the corona pandemic

- How were your ways of working affected?
- Guidance from authorities and trade organizations?
- Actions?
- Benefit/use?
- Was it worth the effort?



*We want to learn from the past
to be better for the future!*

The survey <https://www.kth.se/form/6268ff115f387cf0ec9ebf2e>

Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers



The respondents work with

- *Health care* 13
- *Residential* 9
- *Office* 8
- *Schools* 7
- *Retail* 1
- *All types* 2

Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers



The respondents are

23%	<i>Real-estate owners</i>
17%	<i>Building operators</i>
14%	<i>Technical property managers</i>
9%	<i>Developers/procurers</i>
9%	<i>Contractors</i>
6%	<i>Consultants</i>

and...

- *Tenant representatives*
- *Technology informant*
- *Sustainability strategist*
- *Process developer - real-estate*
- *Researcher*
- ...

75% have more than 5 years experience

46% more than 10 years

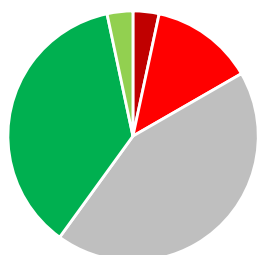
5

Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers



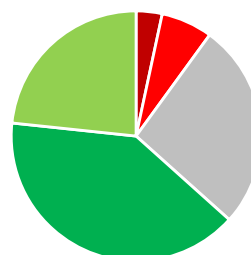
Some of the questionnaire results, so far...

The guidance from **TRADE ORGANIZATIONS** has been of good value



■ Not at all ■ Not entirely ■ Neither/nor
■ Partly ■ Definitely

The guidance from **AUTHORITIES** has been of good value



■ Not at all ■ Not entirely ■ Neither/nor
■ Partly ■ Definitely

consistent, accessible, clear, realistic

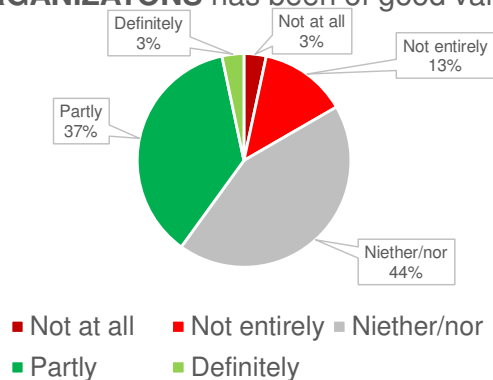
6

Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers

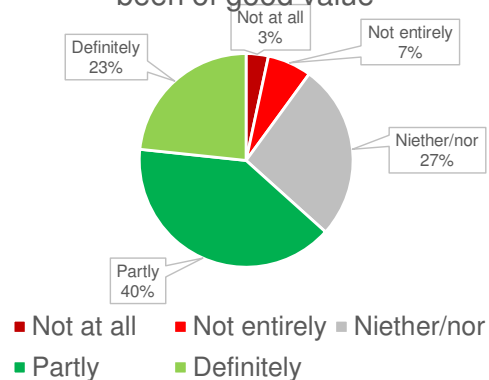


Some of the questionnaire results, so far...

The guidance from **TRADE ORGANIZATIONS** has been of good value



The guidance from **AUTHORITIES** has been of good value



consistent, accessible, clear, realistic

7

Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers



Some of the questionnaire results, so far...

Actions undertaken

- Cleaning, hand hygiene, #people etc.
- Ventilation etc.
- Only ventilation
- No actions

Fraction

71%
43%
14%
5%

Guidance followed from

- Public health auth.
- Work env. auth.
- Building code auth

Fraction

94%
49%
20%

Main message,
daily primetime TV

8

Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers



Actions implemented...

- Changed routes of people movement for less person-to-person contact
- Reduced presence by people
- Limited nr. of people

Would you want to attend a workshop addressing issues like this?

9

Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers



Further actions implemented...

- Earlier start of the ventilation before people arrive
- Later stop of the ventilation after people have left
- Increased ventilation rates
- Improved ventilation control
- Fixed ventilation rates, by blocking demand control
- Stopped return air for 100% outdoor air supply
- Reduced air leakage from rooms
- Better air filtration in ceiling
- Room air cleaners

Would you want to attend a workshop addressing issues like this?

10

Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers



... and some more...

- Reduced air movement between different building parts by keeping doors shut
- Added an air-lock function
- Changed room-pressurization
- No changes, but evaluation sufficient; which is what was needed
- No actions

Would you want to attend a workshop addressing issues like this?

11

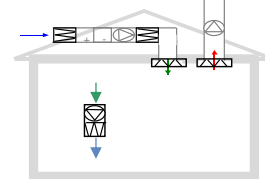
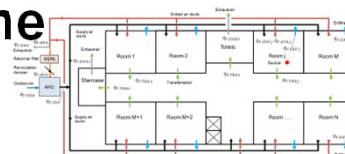
Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers



The questionnaire provides some examples

How can we do it right every time?

- Learn from the good examples
- Verify the function/efficiency
- Know the prerequisites
- Be systematic



Demand controlled
Ventilation is adjusted according to the number of occupants and their activities to save energy.



III. Morawska, L. et al. (2021)

Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers

12



Concluding remark

Harmonize the guidance

Authorities and trade assoc.

Buildings Post Corona knowledge session, 6 October 2022, Lars Ekberg, Chalmers

13

Thank you

Ideas?

Questions?

Reflections?

Lars Ekberg

lars.ekberg@chalmersindustrietechnik.se

+46 (0)703 15 11 55



CHALMERS
UNIVERSITY OF TECHNOLOGY

