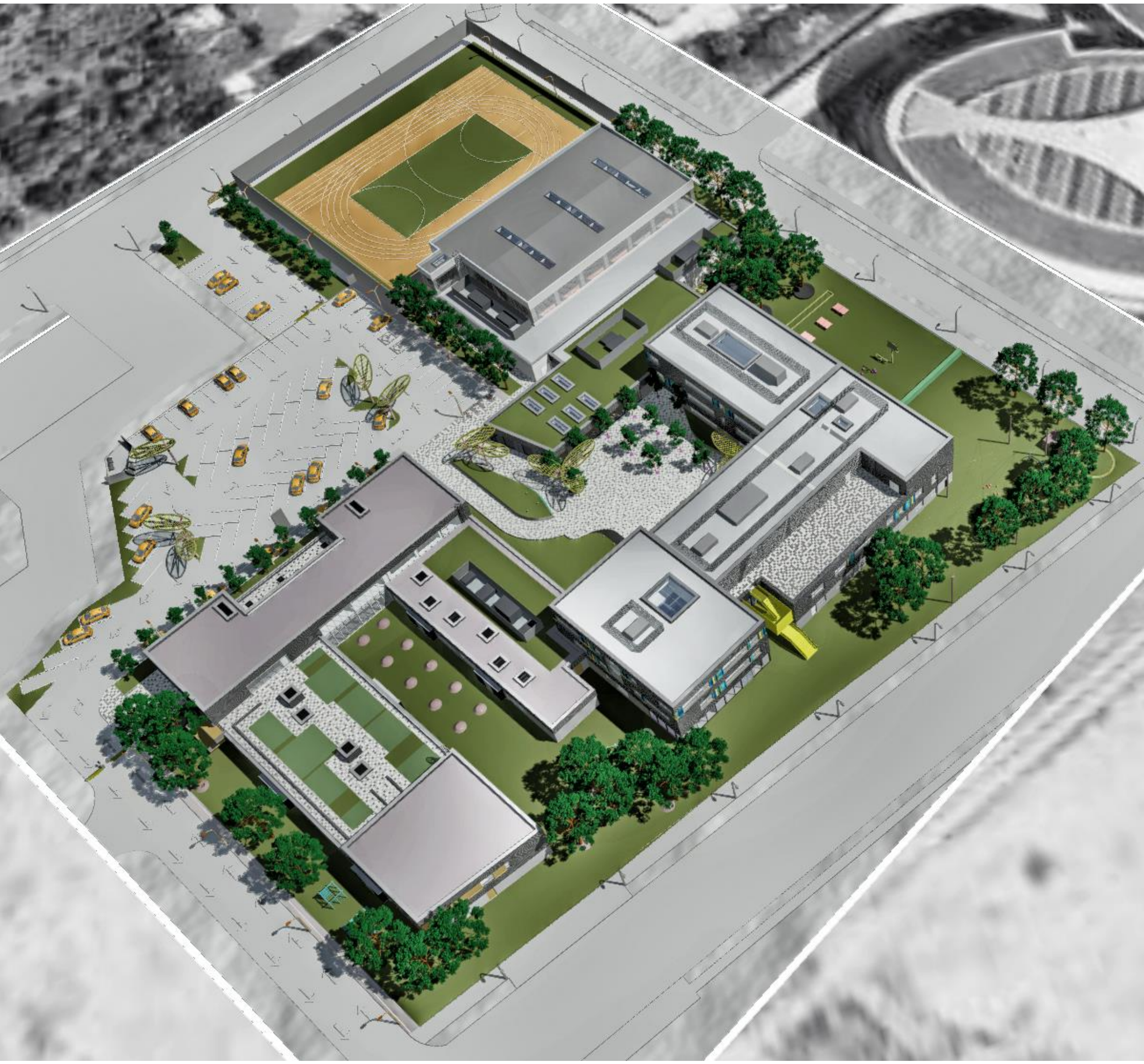
ARHITECTURA

ECOTHINKING | ECOTECHNOLOGY

ASOCIAȚIA ROMÂNĂ PENTRU DEZVOLTARE LOCALĂ DURABILĂ



Școli- studiu comparativ: normativ vs. deziderat în realitate construită în România

Influenta Calitatii Aerului asupra actului de invatamint

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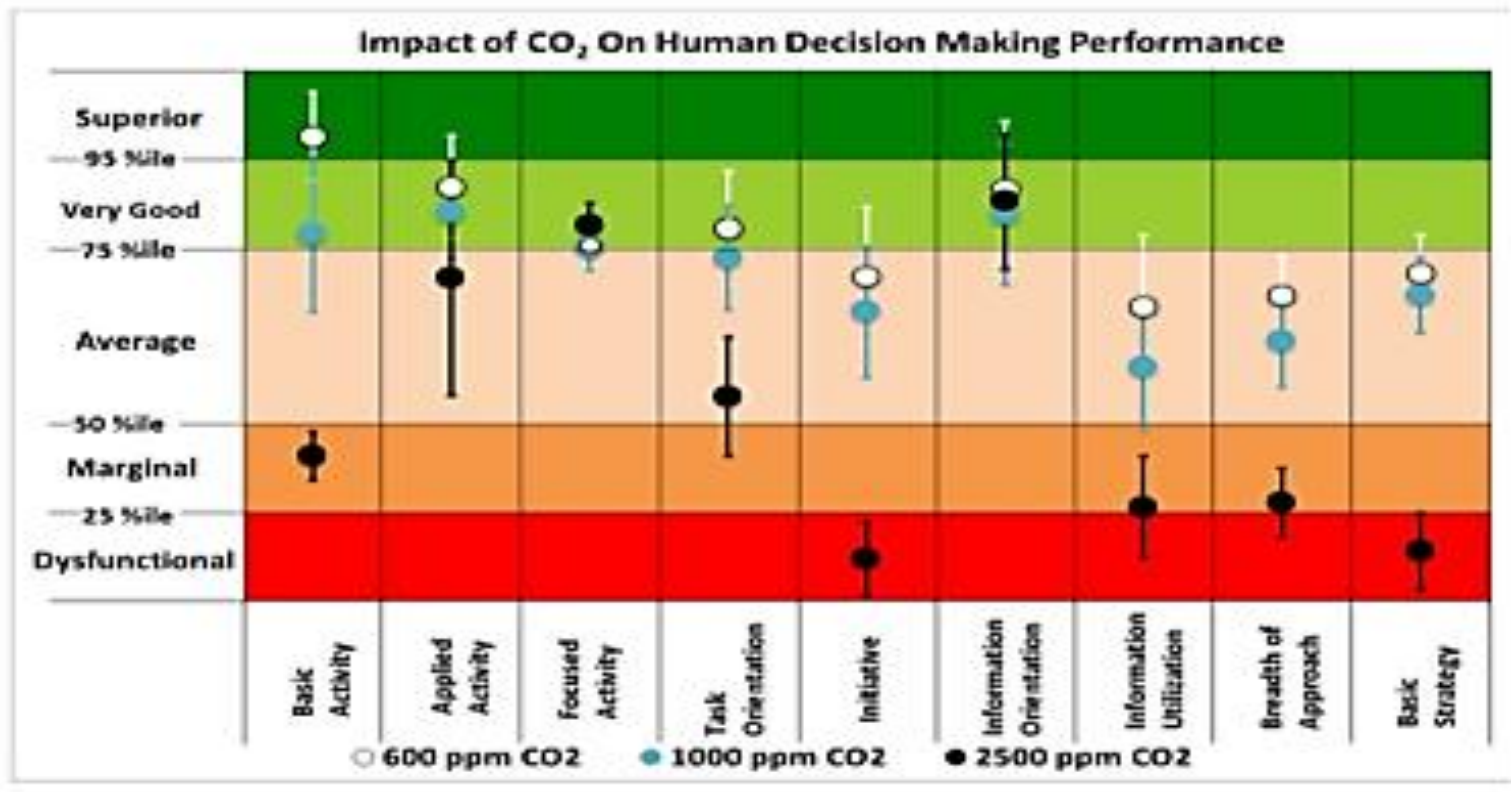
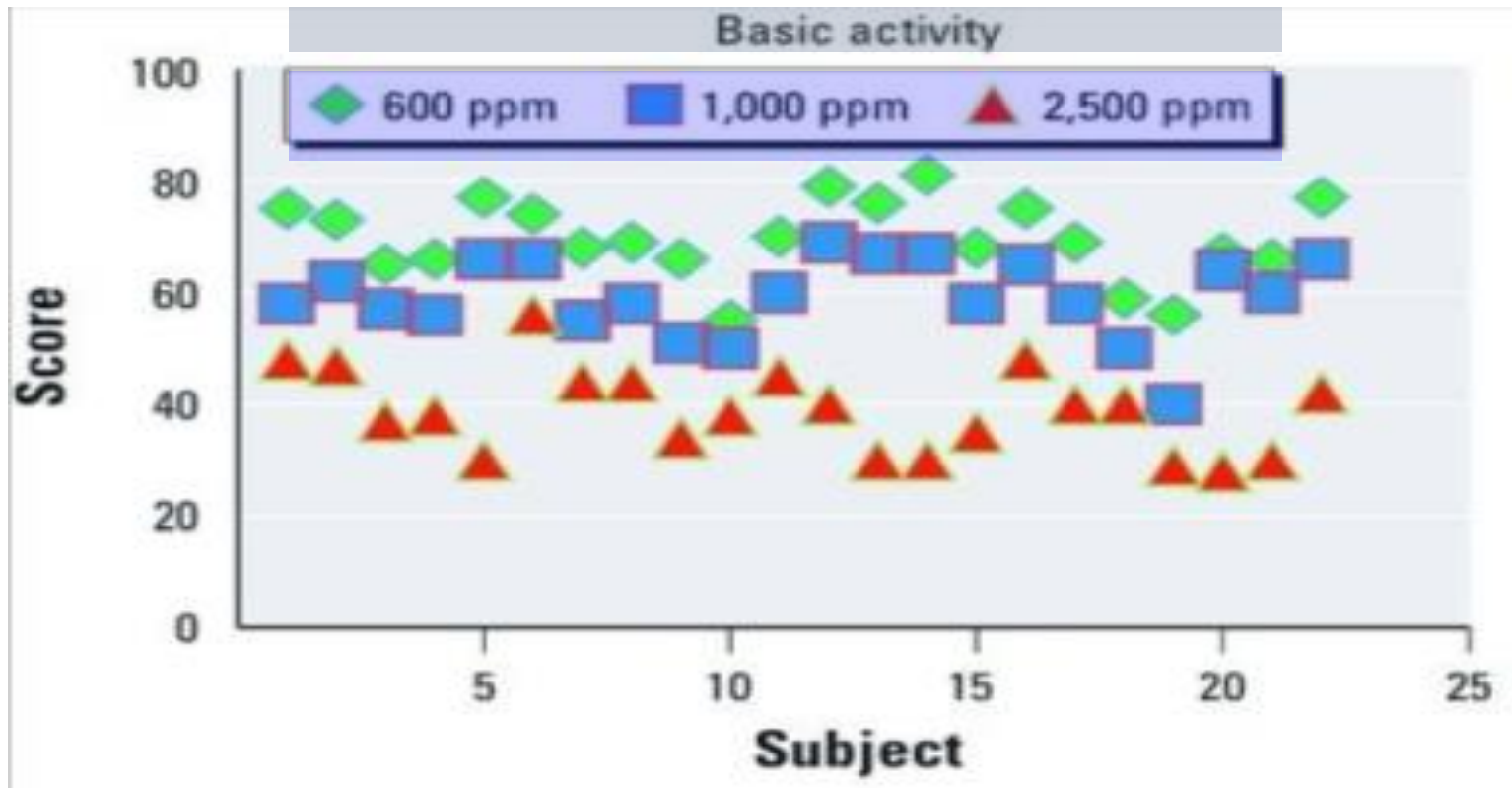
- Concentratile ridicate de CO2 reduc de o maniera covirsitoare capacitatea elevilor de a invata ducand la **<u>rezultate scolare cu pina la 50% mai mici</u>**
- Numeroare studii au demonstrat acest lucru
- Prezentam rezulatele studiului : Elevated Indoor Carbon Dioxide Impairs Decision-Making Performance, realizat de Berkeley Lab USA



Berkeley Lab researchers found that even moderately elevated levels of indoor carbon dioxide resulted in lower scores on six of nine scales of human decision-making performance.

Source: Elevated Indoor Carbon Dioxide Impairs Decision-Making Performance, Berkeley Lab

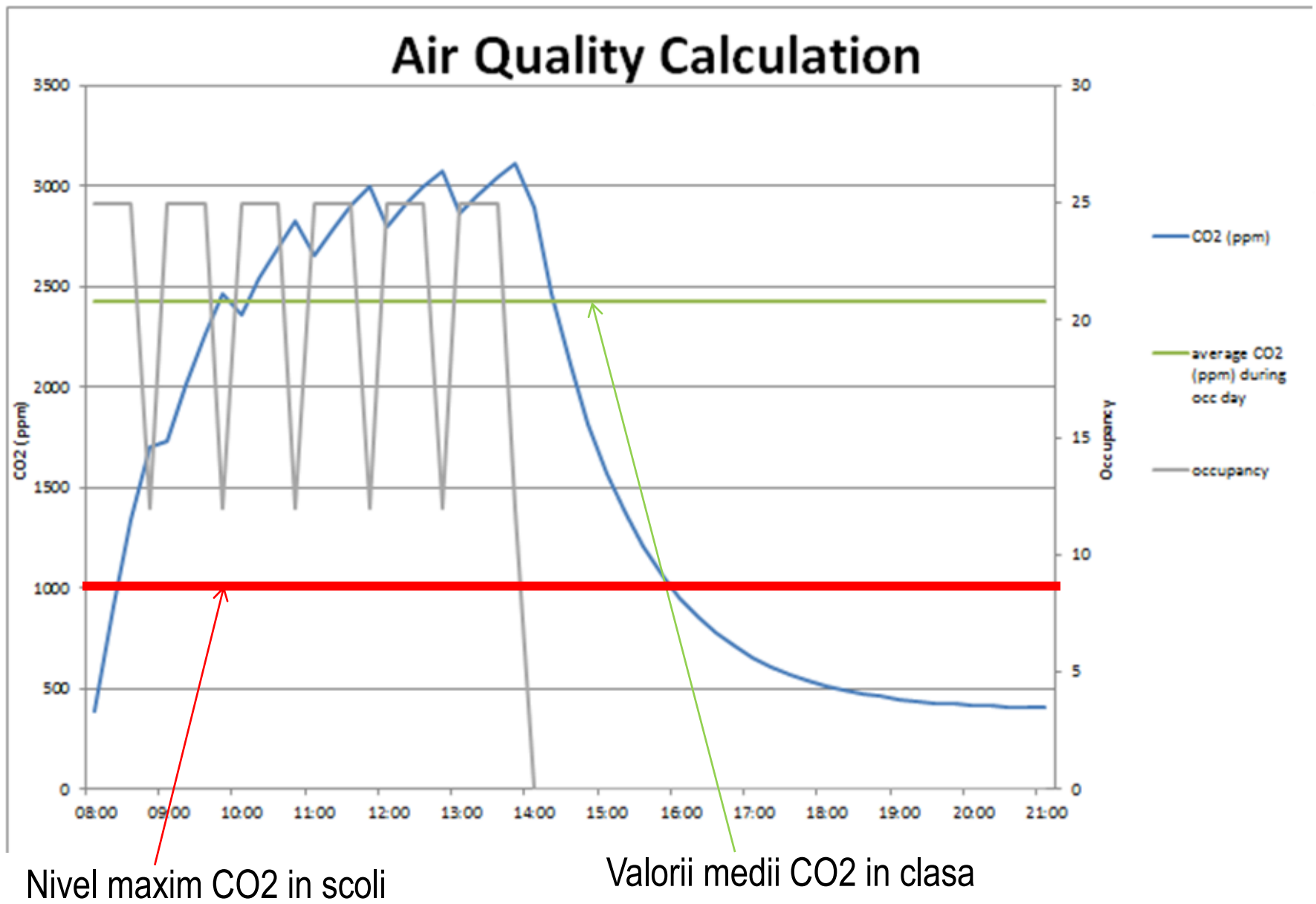


Source: Elevated Indoor Carbon Dioxide Impairs Decision-Making Performance, Berkeley Lab

Evaluare situatie initiala in sala de clasa tip _1

Situatie normala fara reabilitare termica

- Sala de clasa: 50m2, h= 3m
- 25 copii de 7 ani
- Activitate: scriere
- Rata de infiltratie (air changes per hour –**ACH**) 0.75
- Concentratia exterioara de CO2: 390ppm



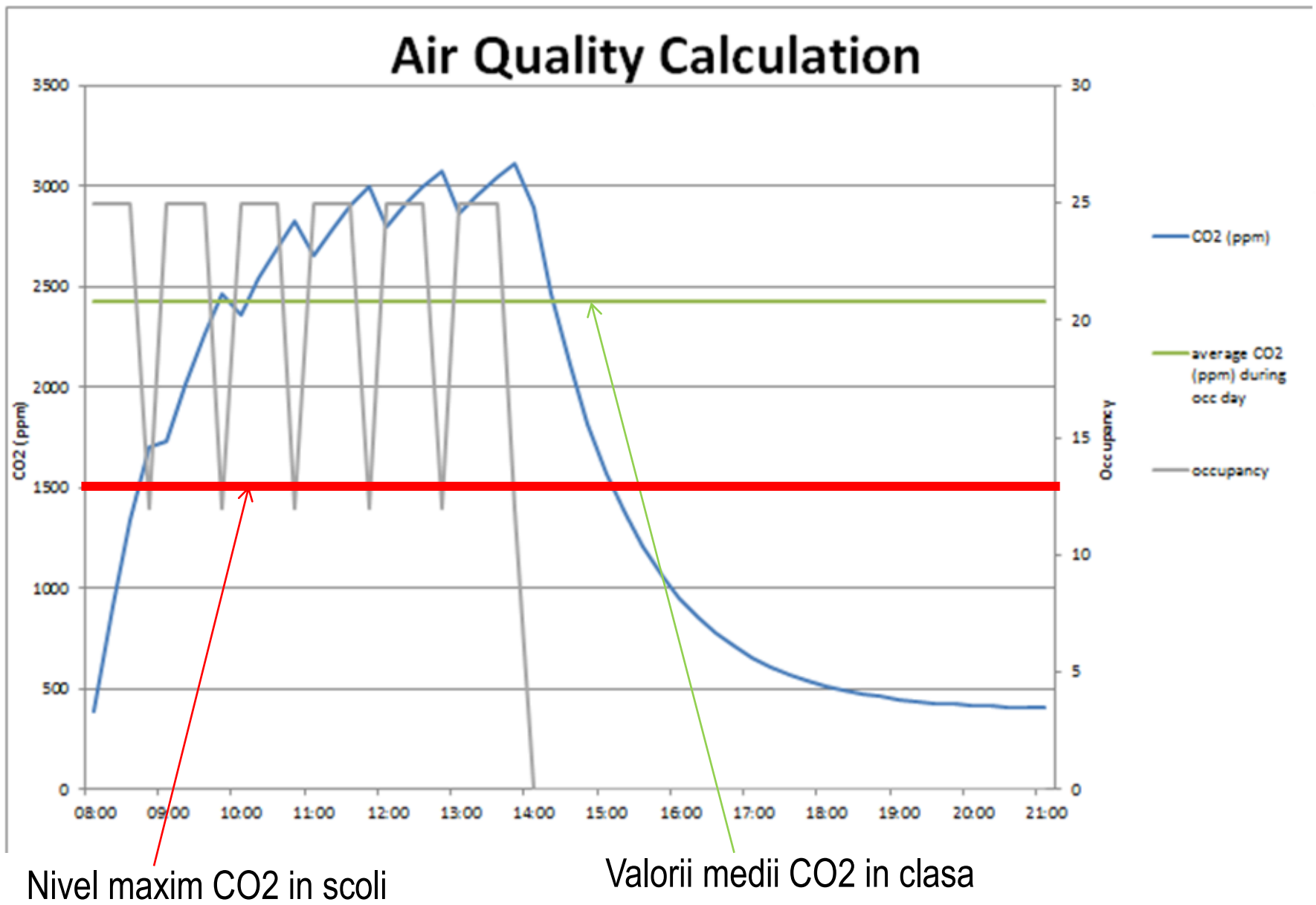
Nivel maxim CO2 in scoli

Valorii medii CO2 in clasa

Concentratie medie CO2 – 2500ppm

Situatie dupa reabilitare termica -> scad infiltratiile exterioare

- Sala de clasa: 50m2, h= 3m
- 25 copii de 7 ani
- Activitate: scriere
- Rata de infiltratie (air changes per hour –**ACH**) 0.50
- Concentratia exterioara de CO2: 390ppm



Nivel maxim CO2 in scoli

Valorii medii CO2 in clasa

Concentratie medie CO2 – 3000ppm

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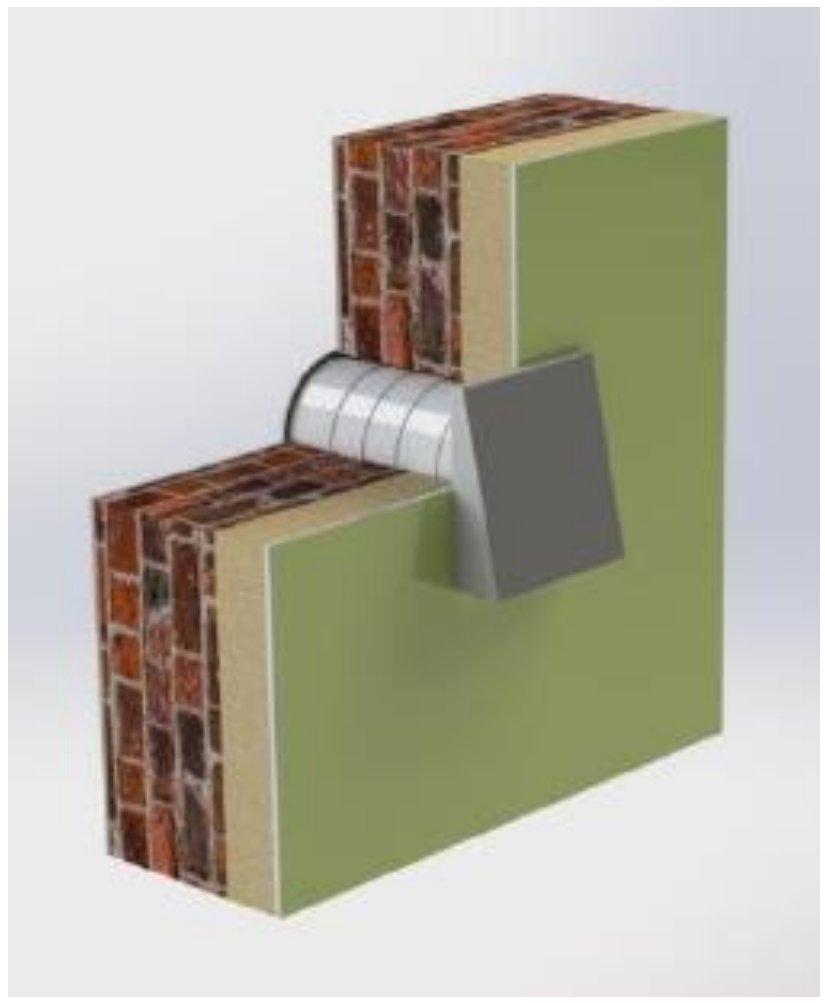
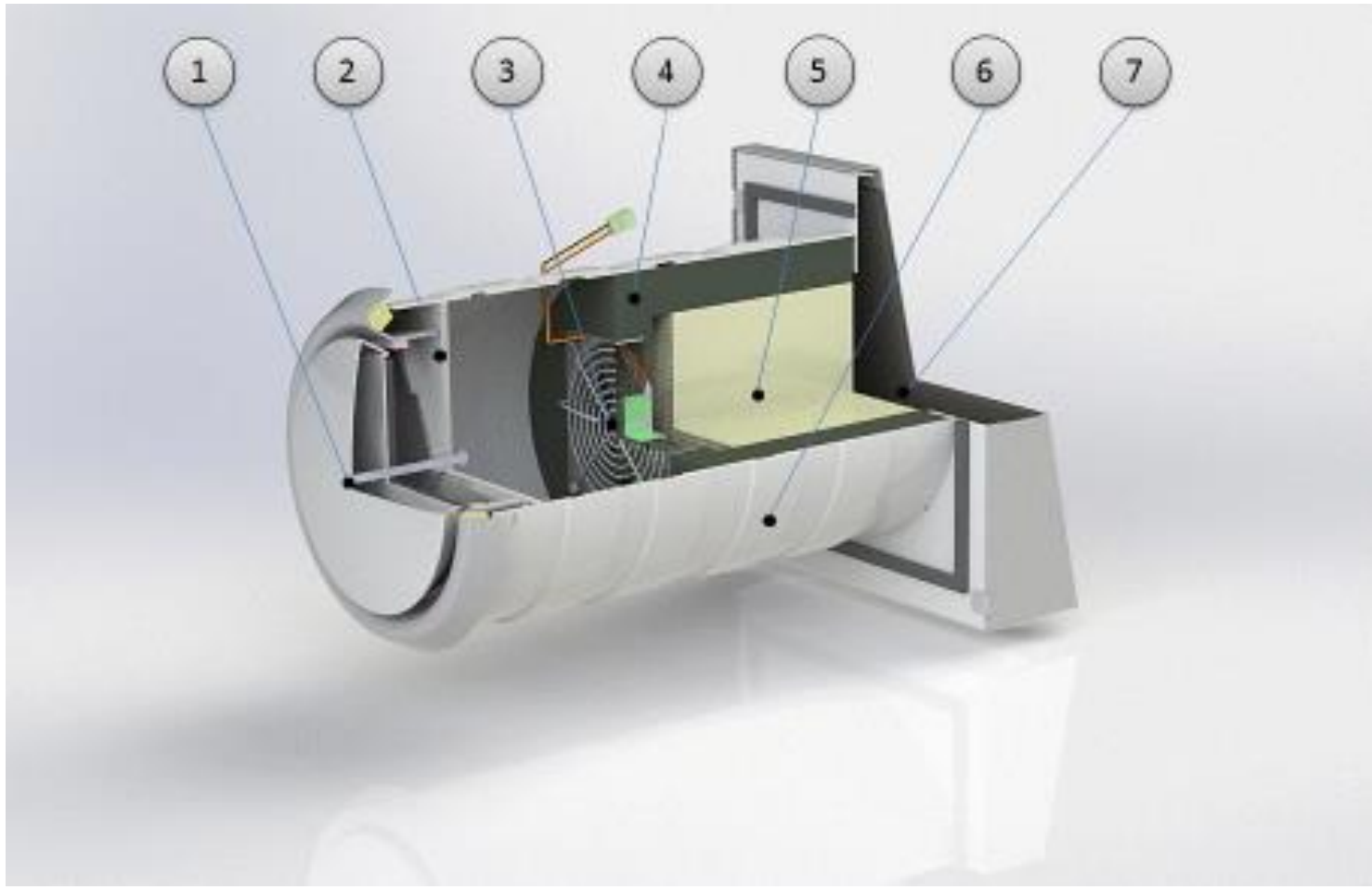
Solutii propuse

- Sistem de ventilare cu recuperate de caldura
- **Tip Ventox DE – RV30**
  - Renovari sau constructii noi
  - Pentru grosimi de pereti inceping de la 310mm, constructie telescopica a canalului de ventilatie fara a necesita interventii pe santieri
  - Recuperare de caldura pina la 91%
  - Usor de instalat



Componente sistem

1. Capac interior;
2. 3D filtru clasa G3;
3. Ventilator reversibil;
4. Material izolator;
5. schimbator de caldura ceramic;
6. Canal de ventilatie telescopic
7. Capac exterior



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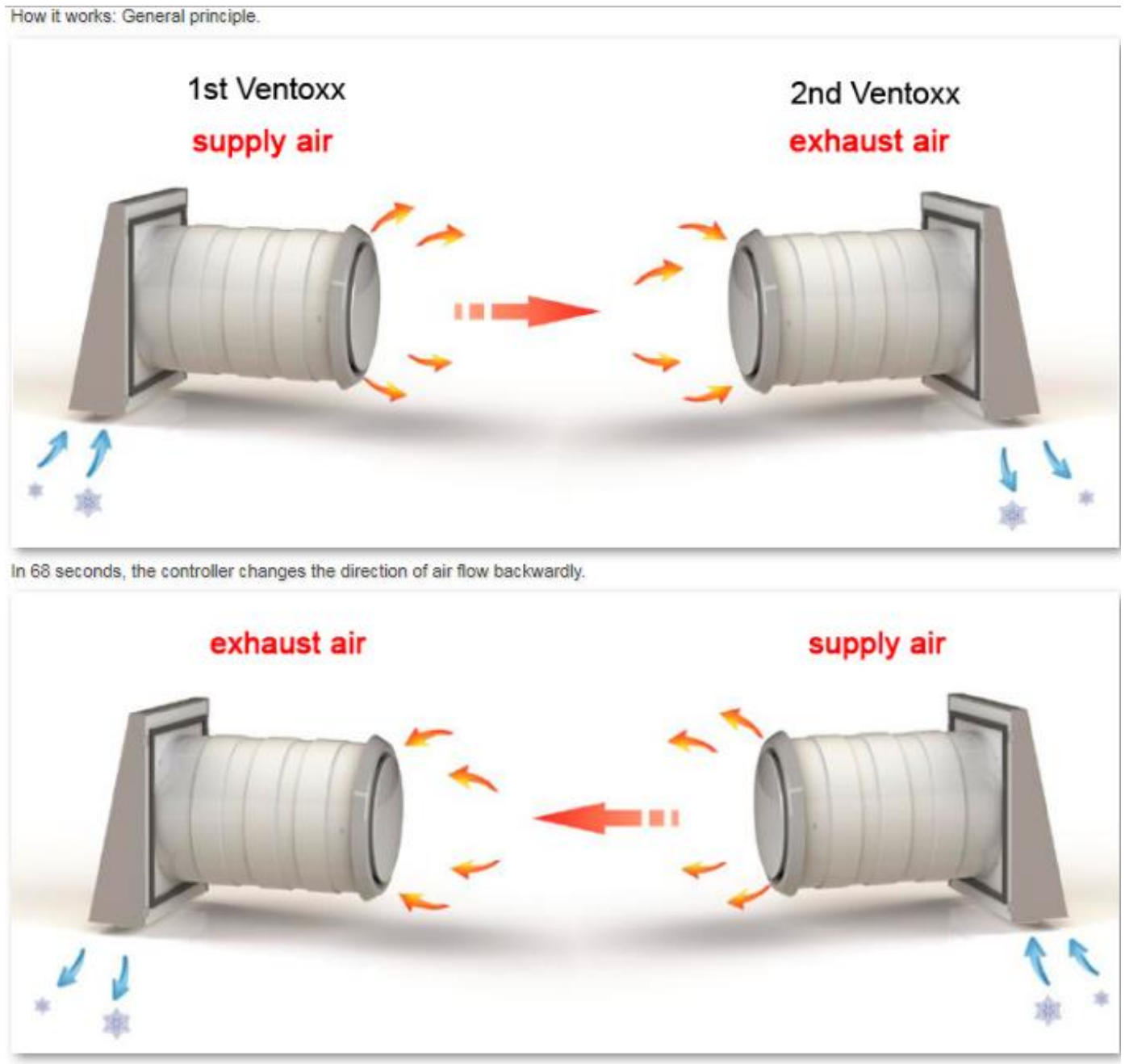
Principiu functionare

- Sistemele Ventoxx functioneaza in pereche (principul pendulului) permitiind ventilare eficienta a spatiului



Caracteristici tehnice

Number of operation modes	17
Number of speed levels in reverse	5
Ventilation volume in reverse, m^3/h	8-33
Rate of heat recovery, %	70-91
Ventilation volume in “maximum ventilation” operation mode, m^3/h	up to 100
Noise level, dB(A)	21-43
Power requirement, W	1,6-2,75
Power requirement during maximum ventilation, W	4,78
Voltage, V	230 VAC or 12 VDC
Speed of Rotation, min^{-1}	825/2205
Type of heat exchanger	High Tech heat accumulator
Diameter of the Mounting Hole, mm	not less than 235
Operation temperature, °C	-20 up to +50
Operating Voltage, VDC	12
Size	Minimum length of telescopic pipe - 300 mm, Diameter - 226 mm, Inner cover: diameter - 240 mm Outer cover: height - 290 mm , Width - 280 mm
Type of positioning	Horizontal placement on outer wall
Maintenance	Filter does not need any replacement. Cartridge with heat accumulator and filter should be checked every three months to make sure that cleaning is necessary.
Protection Class: Fan Control	 IP 33 IP 20
Filter	G3
Class of energy efficiency	A

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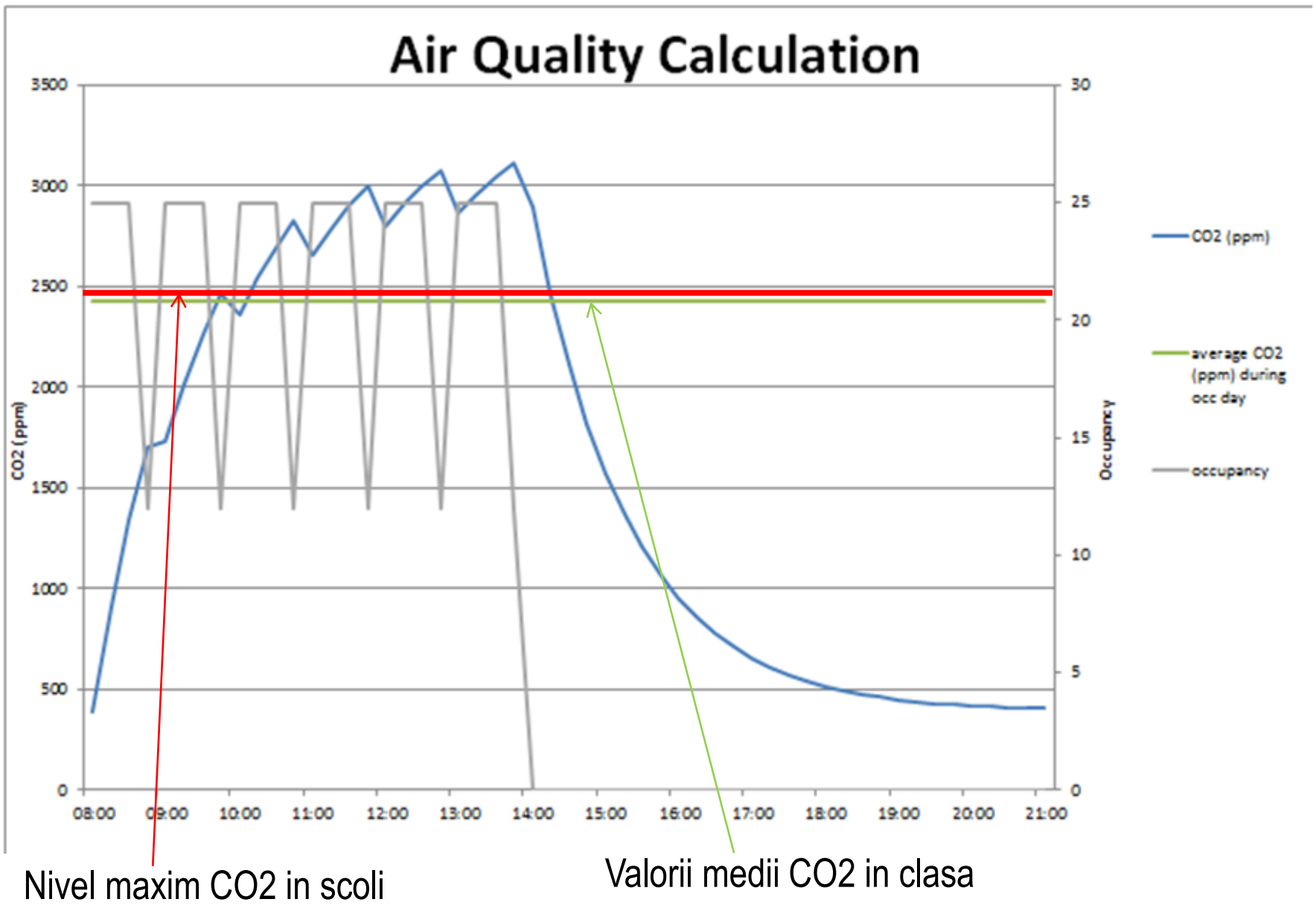
Evaluare situatie cu sistemul de ventilatie propus in sala de clasa tip

Situatie cu reabilitare termica

- Sala de clasa: 50m2, h= 3m
- 25 copii de 7 ani
- Activitate: scriere
- Rata de infiltratie (air changes per hour –**ACH**) 0.5
- Concentratia exterioara de CO2: 390ppm
- 4 sisteme Ventox DE RV30



Concentratie medie CO2 – 980ppm

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