

# Layers from big strawbales: thermal insulation for everybody

Jenik Hollan,

CzechGlobe & AdMaS

2011

# Why big bales?

They are a standard now. It's so much easier to get them... And they have a own advantage.



# They consist of well-defined layers

- And layers are good.
- Buildings rely on layers.
- A layer of glass separating indoor and outdoor spaces helps.
- Additional glass layer helps too – or does it?
- How?

# How many layers are there?

- A single-pane window (they exist even in Czechia, in uninhabited buildings) insulates, for sure
- Does not let through the wind
- And the the longwave radiation: we don't feel the frost from outside
- And the air close to it does not move. Heat diffuses just slowly through.
- So there are 3 layers: calm air, glass, calm air.

# Better windows?

- 2 pane: 6 layers – 3 for each glass
- 3 pane: 9 layers
- 4 pane: 12 layers, all slowing down the heat flow
  
- What about the air gaps between glass panes?
- The larger the better?
- Almost, but...

20 may be not much more than 2

as the air gap is regarded. Why?

Convection...

# Straw-filled double window?

- would insulate much better (with some drawbacks)
- but still not perfectly
- Convection...

# Straw-filled quadruple window?

Would work almost ideally.

Need not be glass, any air-stop does:  
paper, cardboard, clay...

Injecting small bales? Not easy.

Assembling a sandwich? Goes well !







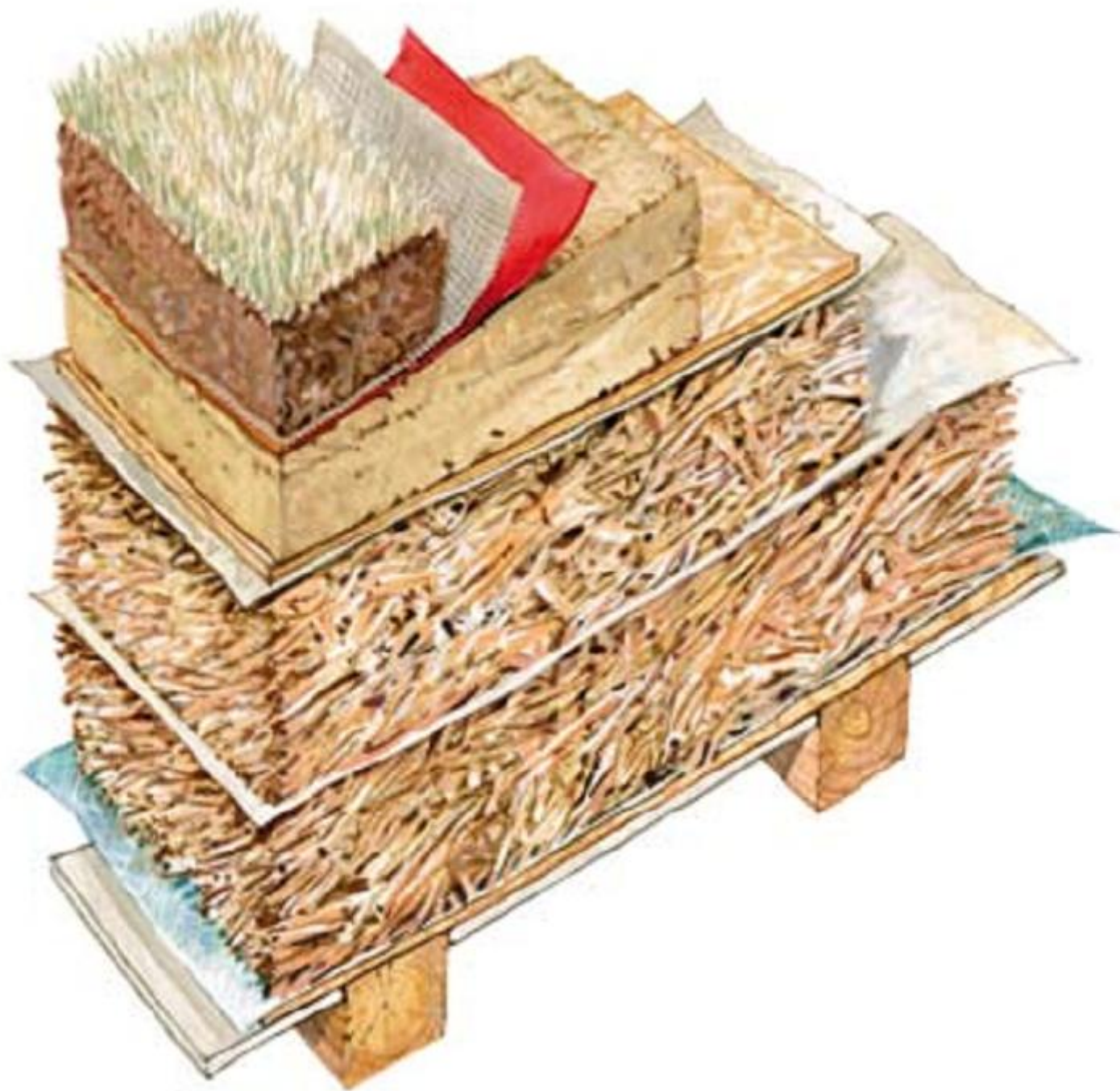








# Zatrávněná plochá střecha



kresba © Pavel Procházka







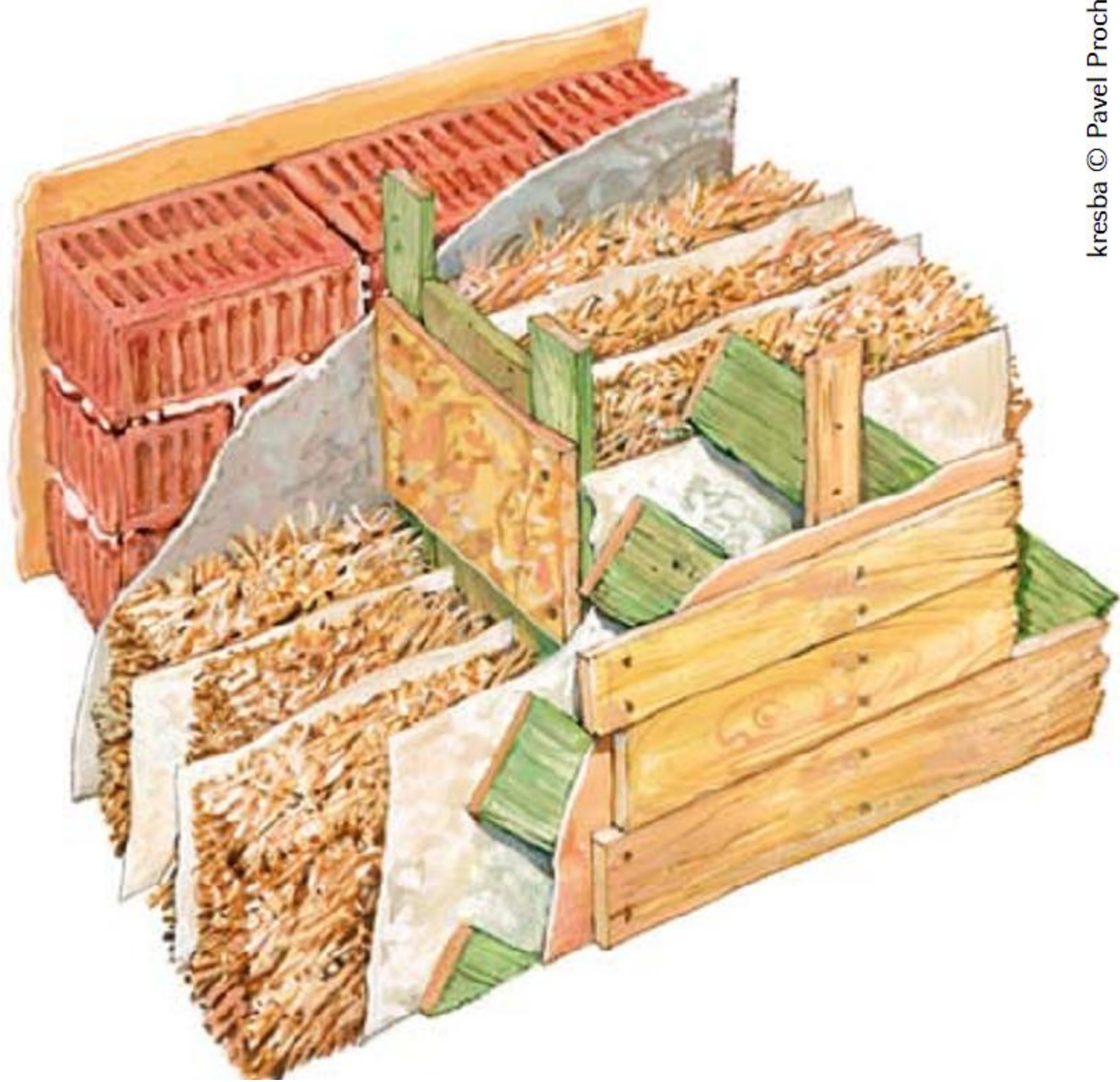


















# Insulating roofspace: no regret

Proceeds more quickly than with small bales.

More uniform.

Any thickness. May be increased later.

**Go and try it !**