

# Carbon footprints and handprints: Searching for the balance in the built environment

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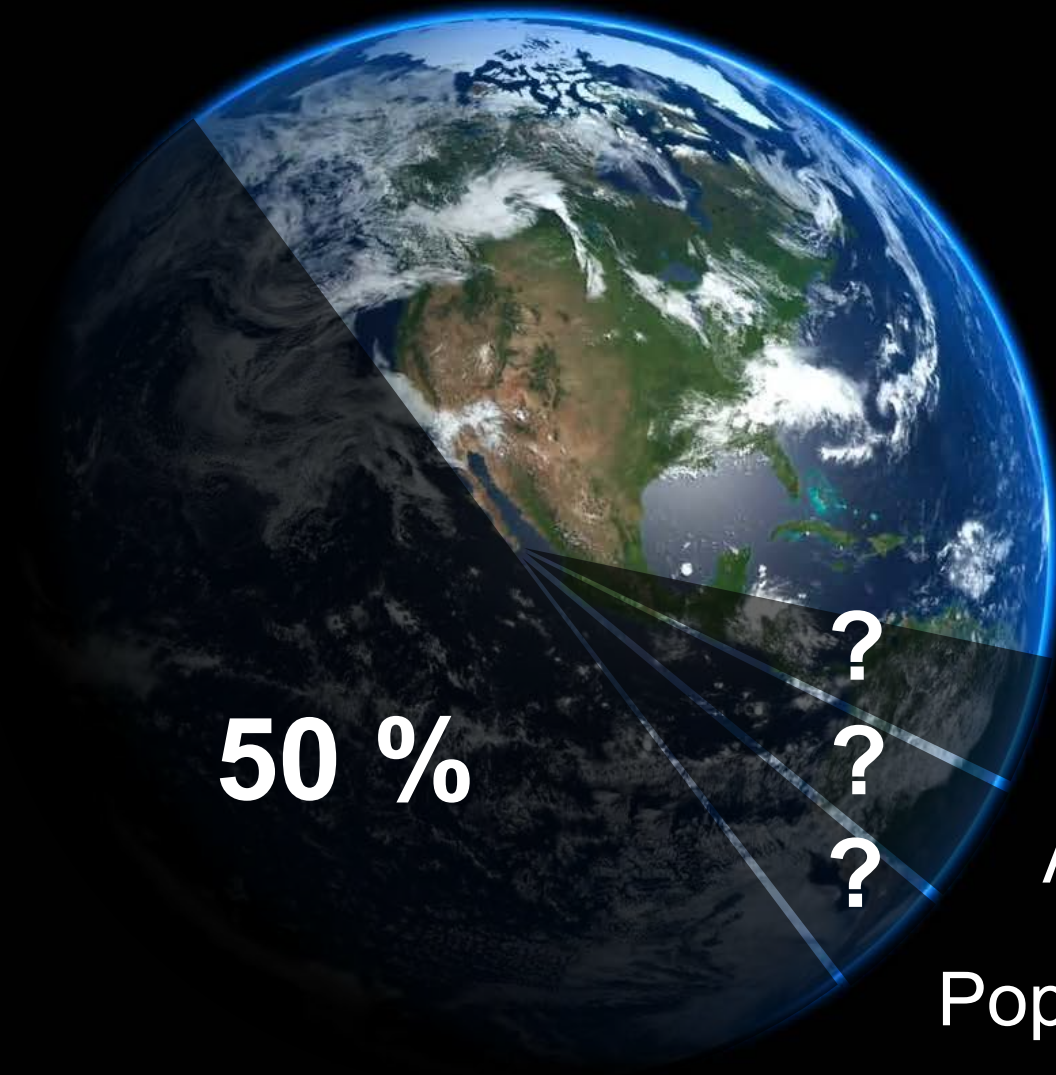
A photograph of a construction site at sunset. Several tall cranes are silhouetted against a sky that transitions from a deep blue at the top to a bright orange at the horizon. In the foreground, the dark silhouettes of buildings under construction are visible. A horizontal dashed white line runs across the middle of the image, separating the upper and lower text sections. A large white double-headed vertical arrow is positioned in the center-left, pointing both up and down.

Value and quality

Decoupling

Environmental and  
social harms





50 %

?

?

?

Sea level rise?

Ageing infrastructure?

Population growth?





**~ 570 GtCO<sub>2</sub>**

remaining carbon budget,  
if global warming is limited  
to 1.5 degrees  
(IPCC, 2018)





**~ 570 GtCO<sub>2</sub>**

remaining carbon budget,  
if global warming is limited  
to 1.5 degrees  
(IPCC, 2018)

**<**

**920 GtCO<sub>2</sub>**

estimated emissions from the  
production of cement, steel,  
aluminium and plastic  
(Material Economics, 2018)





~ 570 GtCO<sub>2</sub>

remaining carbon budget,  
if global warming is limited  
to 1.5 degrees  
(IPCC, 2018)



550 GtCO<sub>2</sub>

estimated production emissions if  
energy efficient production and  
decarbonised energy are used  
(Material Economics, 2018)





~ 570 GtCO<sub>2</sub>

remaining carbon budget,  
if global warming is limited  
to 1.5 degrees  
(IPCC, 2018)

>

300 GtCO<sub>2</sub>

estimated production emissions if  
radical measures of circular  
economy can be deployed  
(Material Economics, 2018)



The background of the image shows several construction cranes silhouetted against a sky transitioning from a deep blue at the top to a bright orange and yellow at the bottom, suggesting a sunset or sunrise. A horizontal dashed white line runs across the middle of the image.

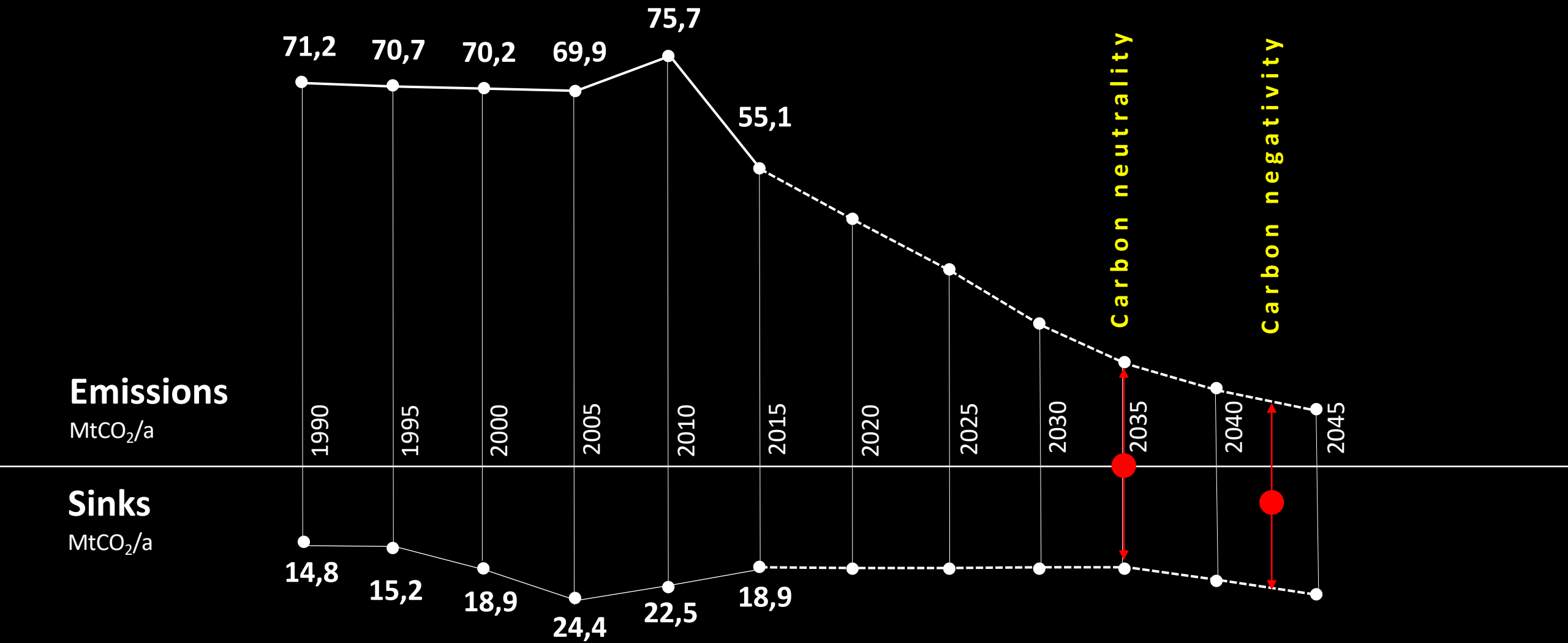
Value and quality



Decoupling

Environmental and  
social harms





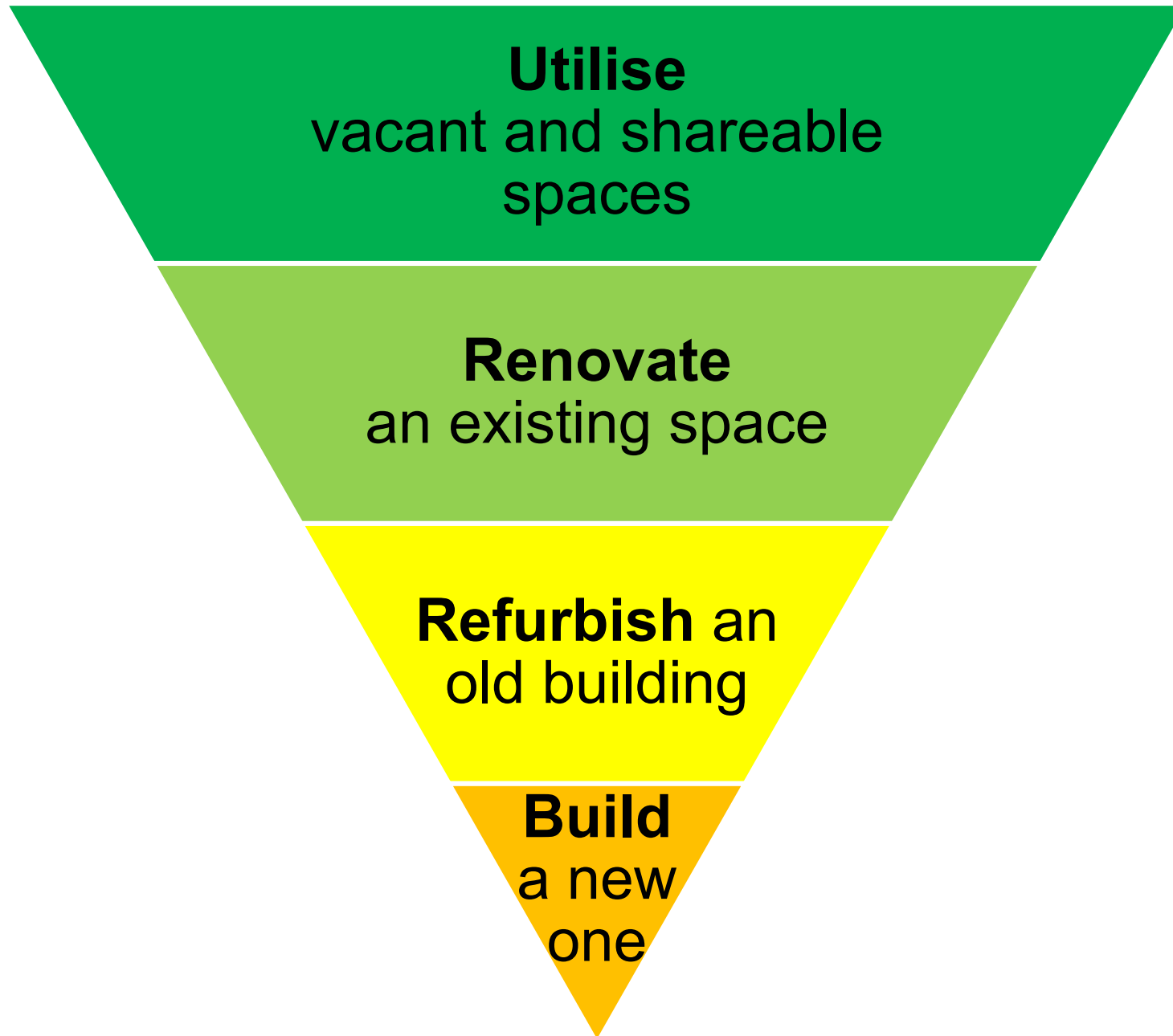
**Towards carbon neutrality: The case of Finland**



A stylized, pixelated city skyline is depicted on the left side of the image. The skyline consists of various buildings of different heights and widths, rendered in white and shades of gray. The buildings are arranged in a way that creates a sense of depth and perspective. The background is a solid black, which makes the white and gray buildings stand out prominently.

**We need to  
reconsider the  
needs for new  
construction.**





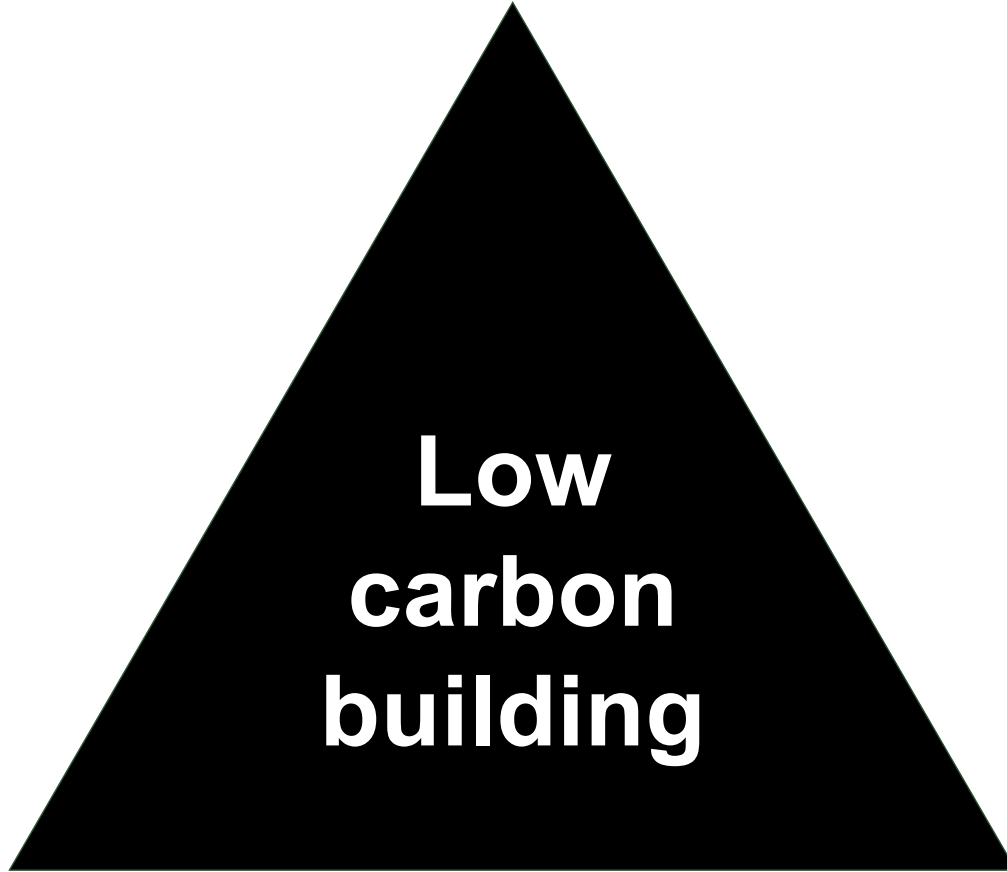


**Premise**

**Low  
carbon  
building**

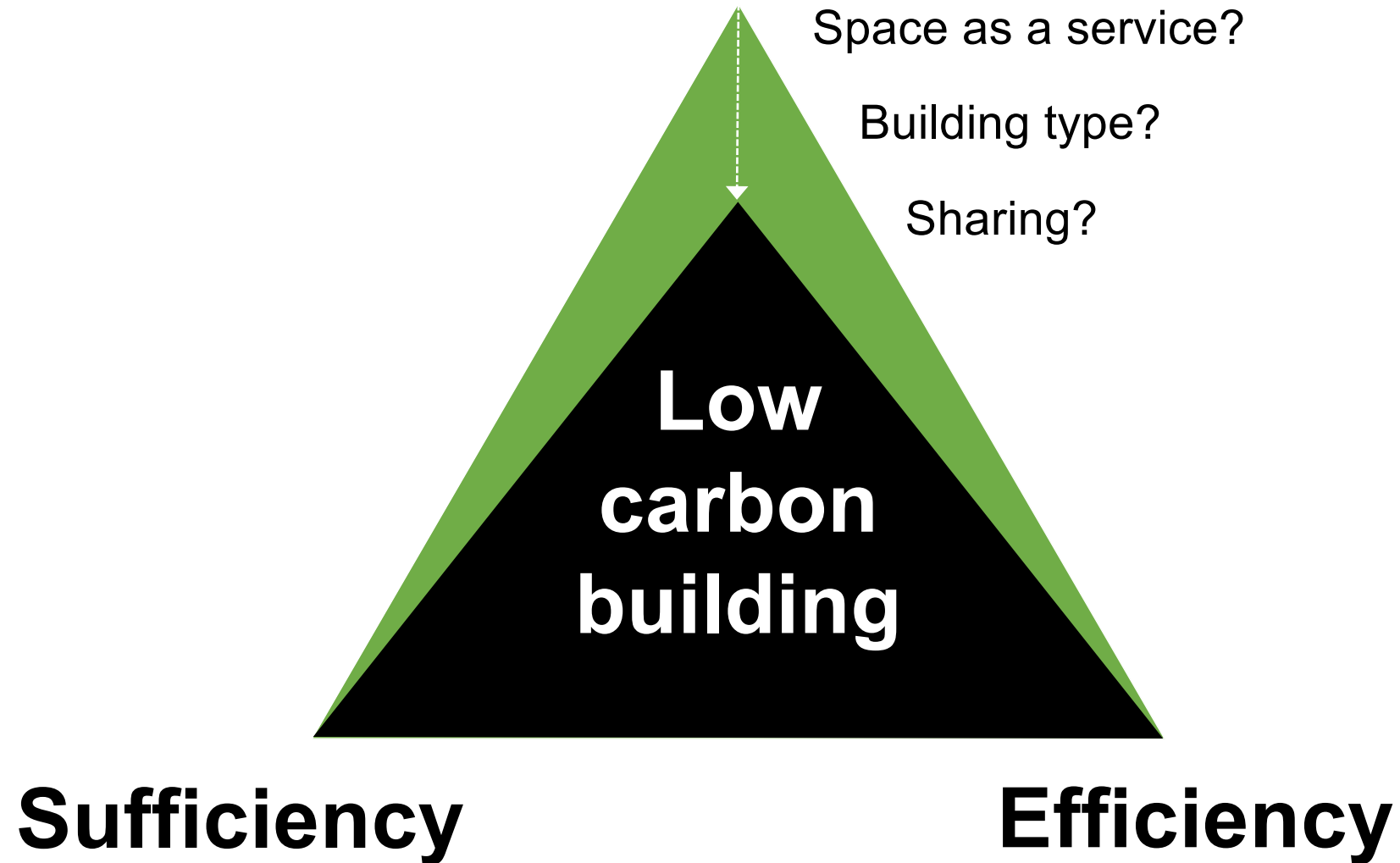
**Sufficiency**

**Efficiency**





# Premise





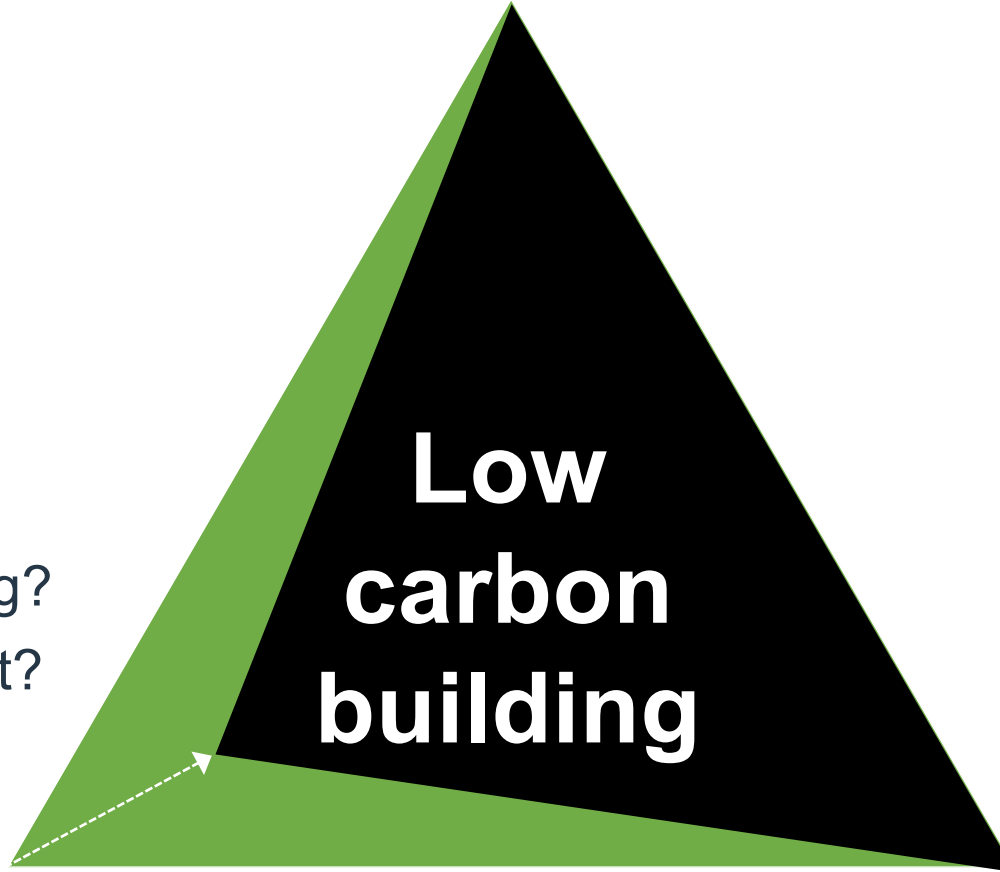
**Premise**

**Low  
carbon  
building**

Sharing?  
Equipment?  
Volume?  
Floor area?

**Sufficiency**

**Efficiency**





**Premise**

**Low  
carbon  
building**

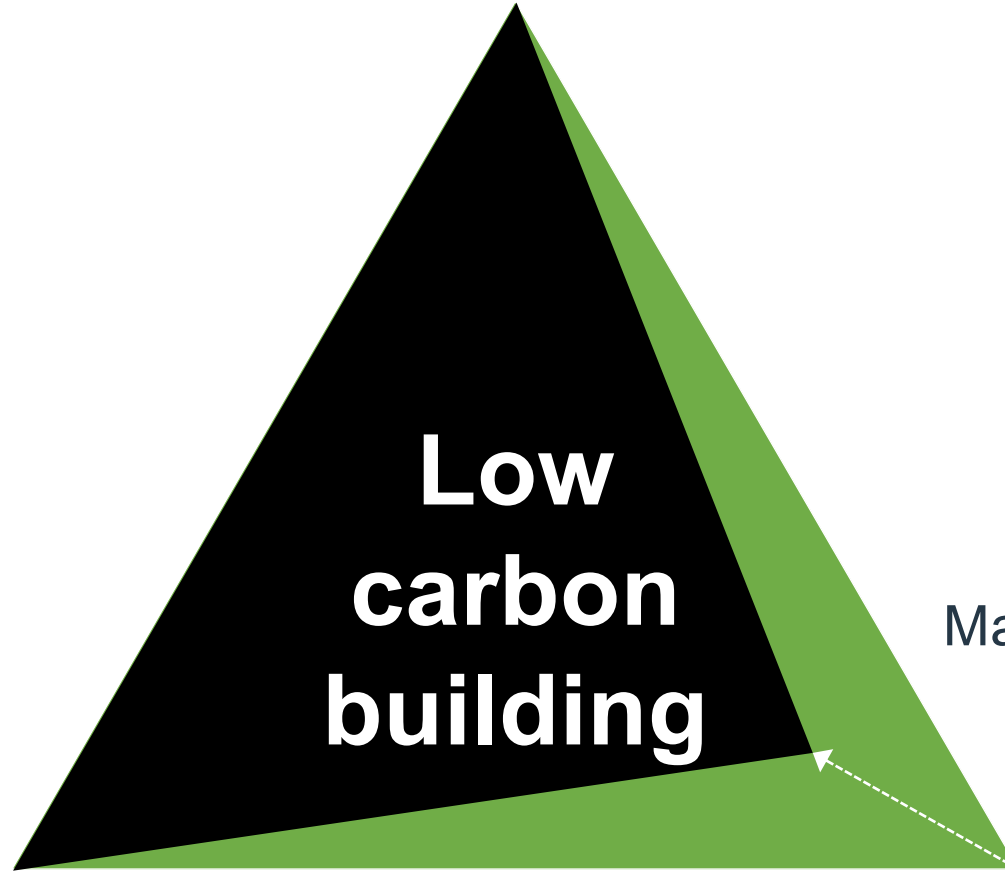
**Sufficiency**

**Efficiency**

Materials?

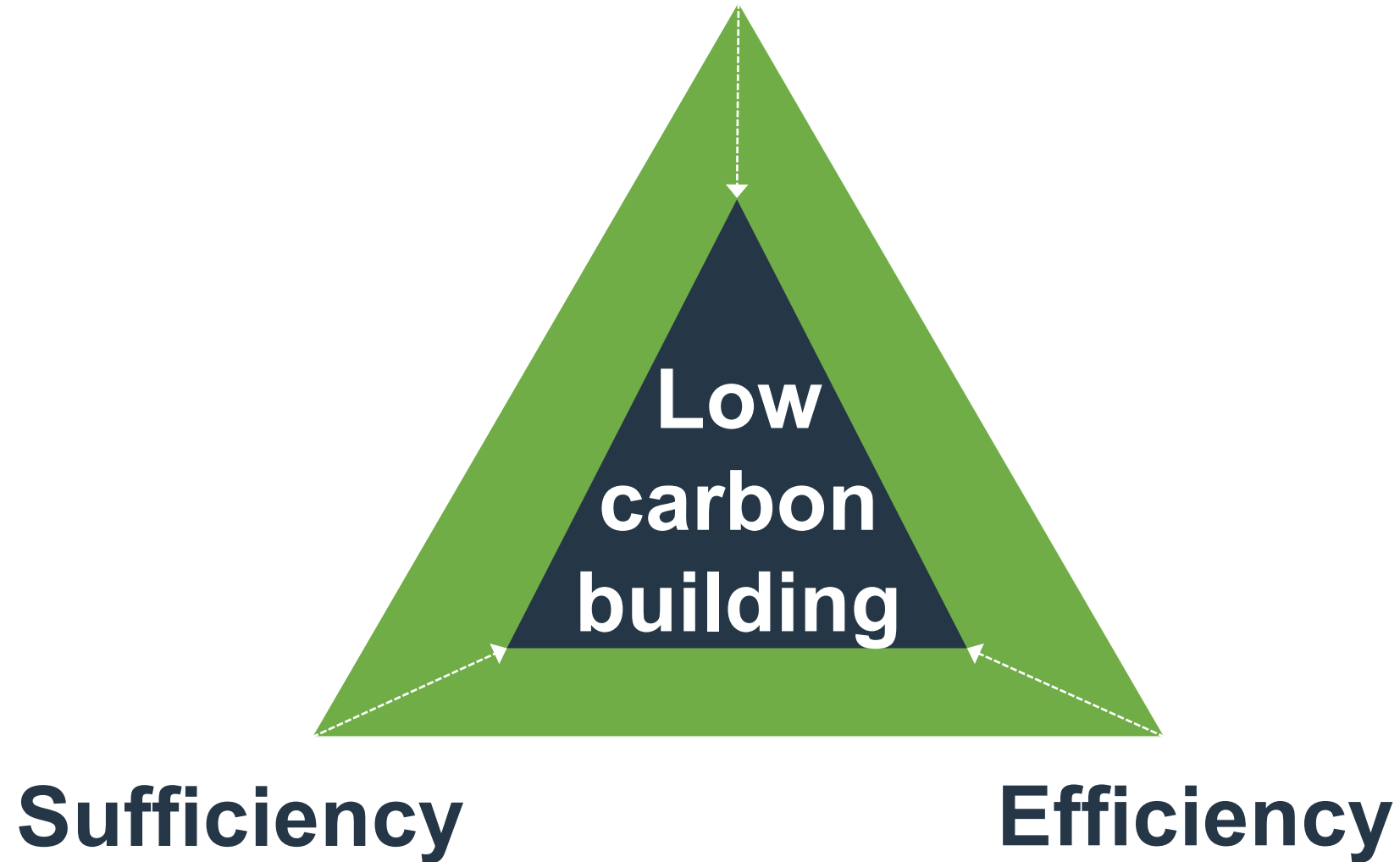
Energy?

Space?





**Premise**







**Timber**

**Copper**

**Gypsum**

**Stone**

**Rubber**

**Glass**

**Plastics**

**Bronze**

**Carbon**

**Aluminium**

**PCB**

**Lead**

**Steel**

**Cadmium**

**Asbestos**





**Carbon**

**a critical asset**



An aerial photograph of a vast, dense boreal forest. A dark, winding river flows through the lower half of the image, surrounded by thick evergreen trees. In the upper left, a bright blue lake is visible, also surrounded by forest. The terrain is hilly, and the sky is clear and blue. A white speech bubble with the word "Carbon" is centered in the middle of the image.

**Carbon**



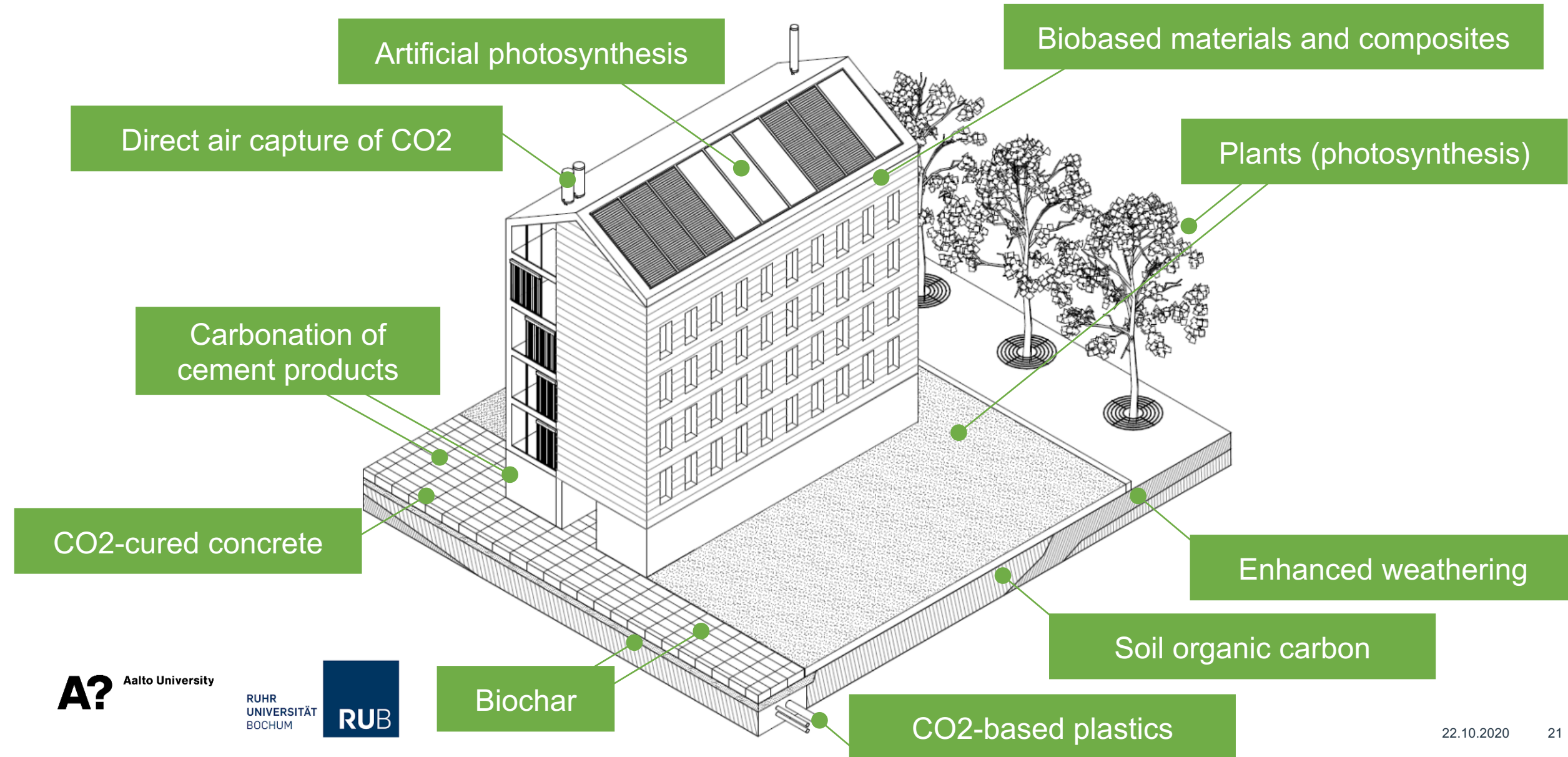


**Carbon**

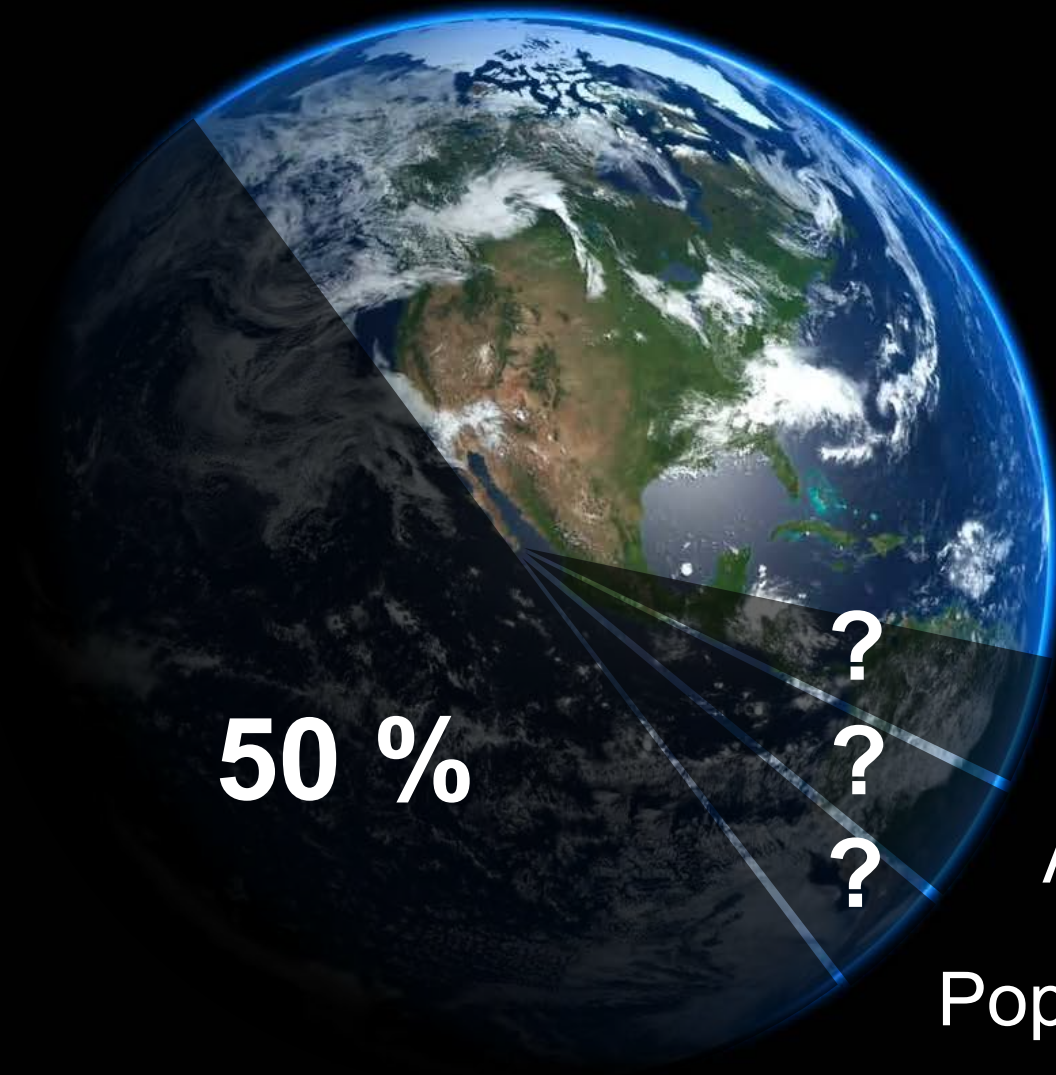
**150...300 kgCO<sub>2</sub>e / m<sup>2</sup>  
in wooden houses**



# Storing carbon into the built environment?







**50 %**

?

?

?

Sea level rise?

Ageing infrastructure?

Population growth?



**Carbon banks?**

