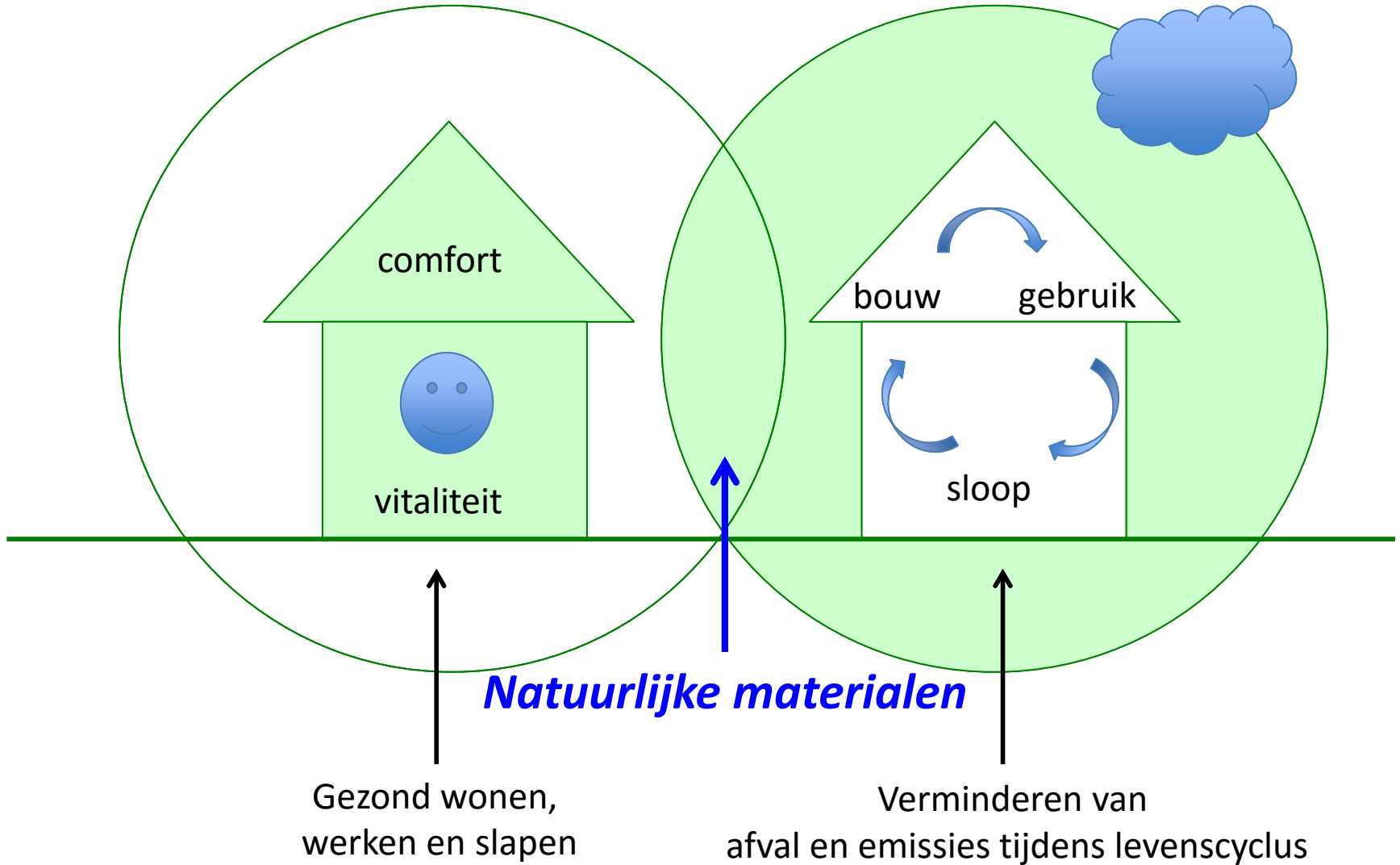


Natuurlijke materialen

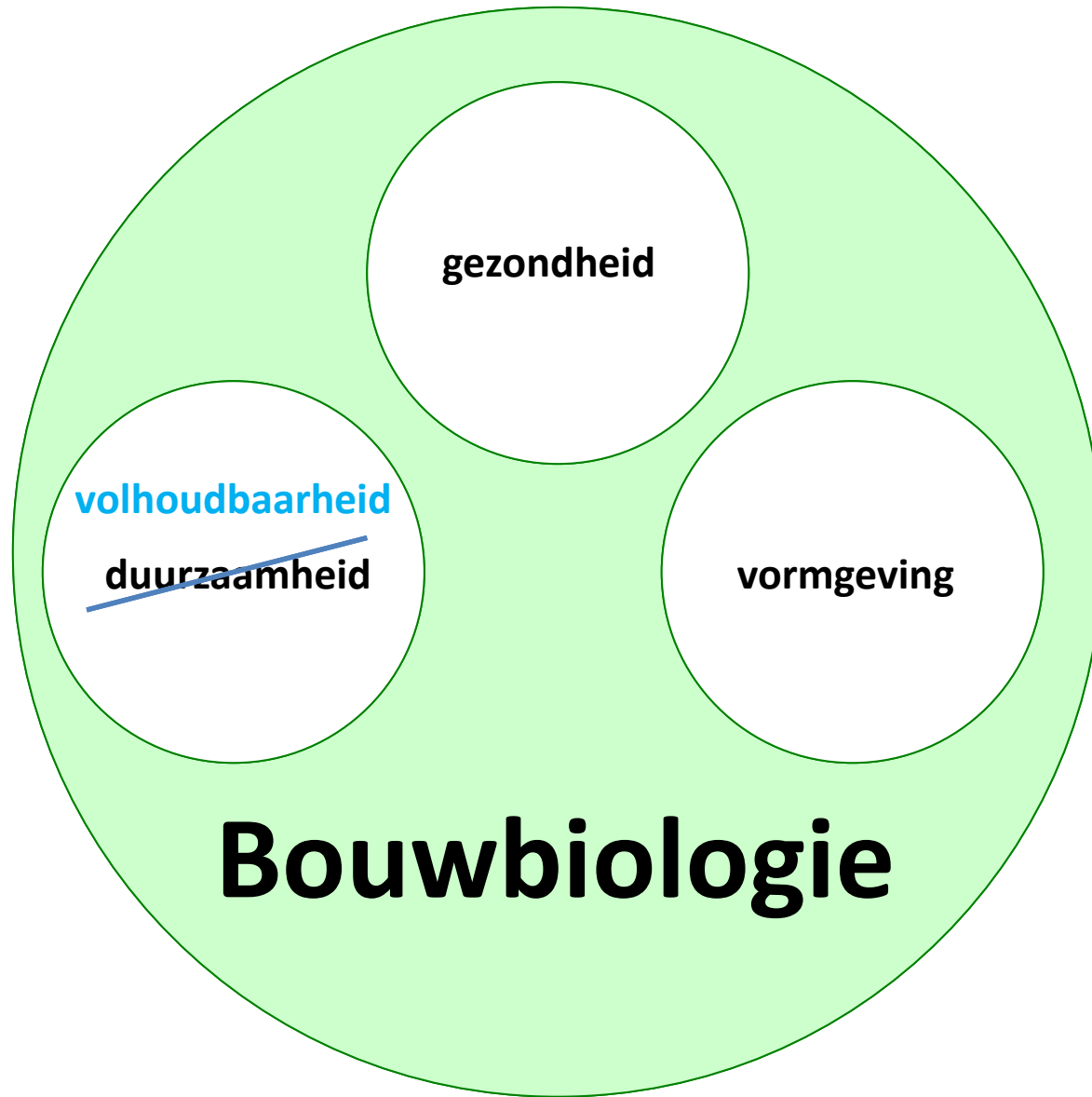
## Bouw biologie

## Bouw ecologie





Institut für  
Baubiologie +  
Nachhaltigkeit



**Bouwbiologie =**  
leefomgeving  
gebouwen - de mens



- Bouwlocatie
- Vormgeving
- Milieu – energie – water
  - Ruimte-klimaat
  - Bouwmaterialen



# Bouwlocatie



# Bouwlocatie



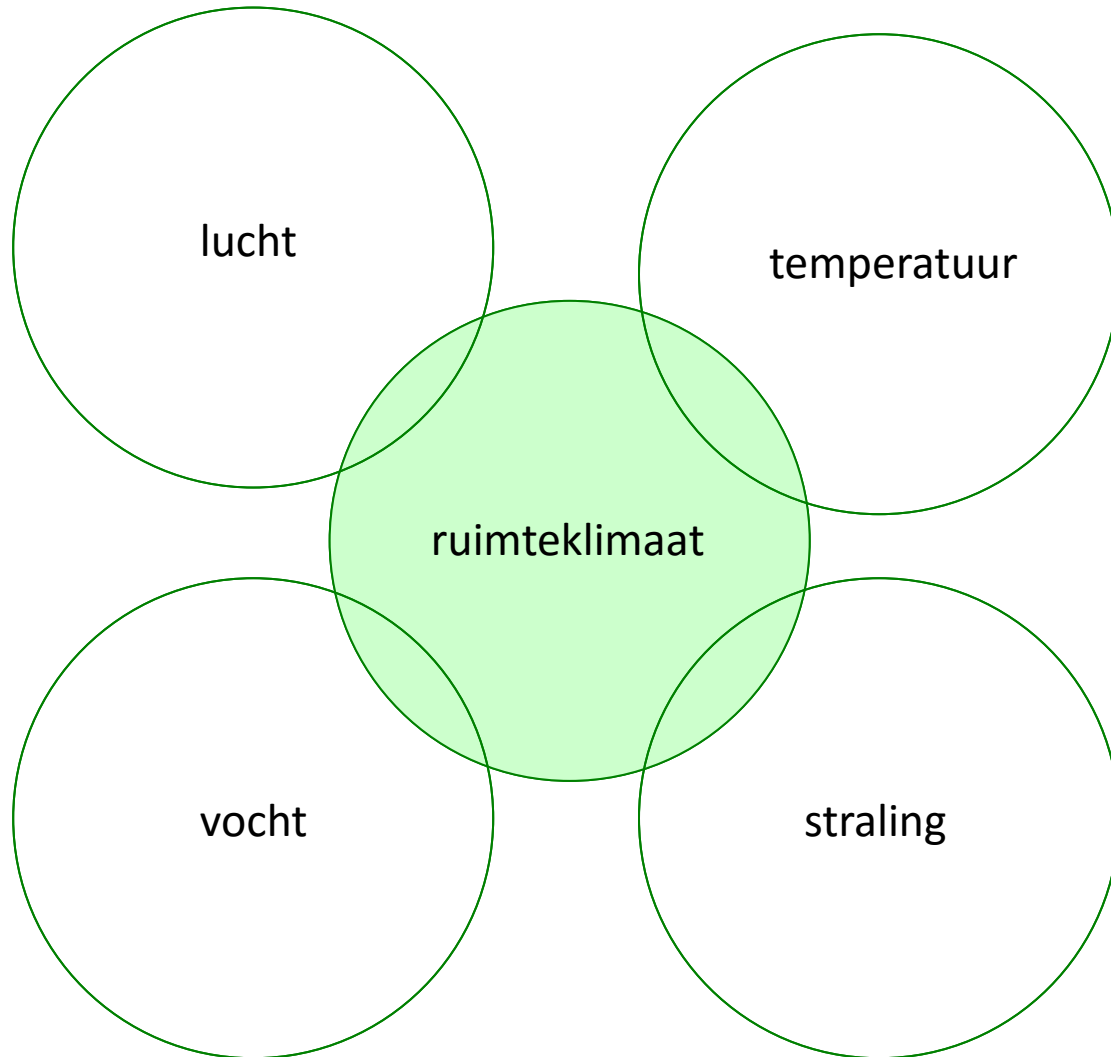
# Vormgeving



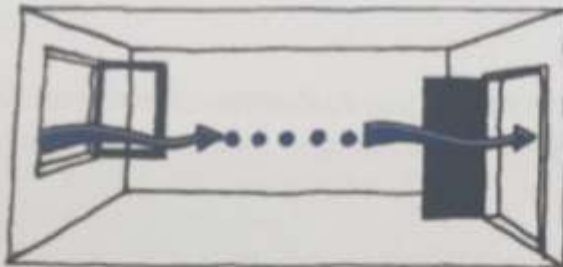
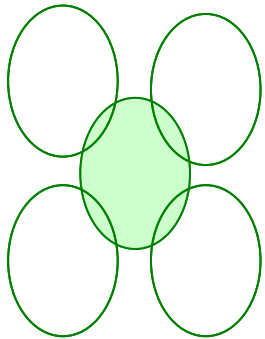
Energie, milieu, water



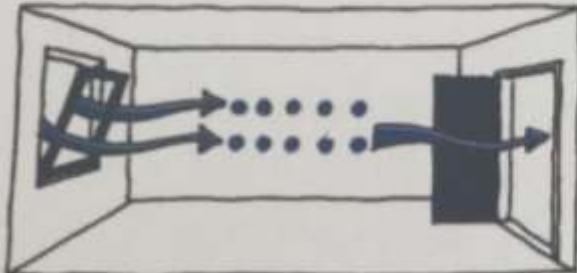
# Ruimteklimaat



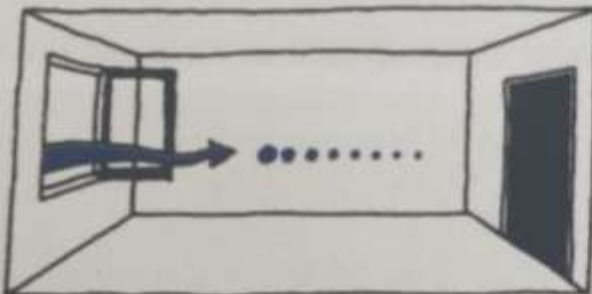
# Lucht



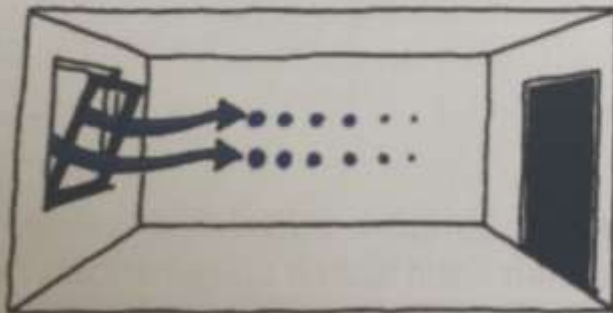
Winter 2 - 4 min.  
Frühjahr/Herbst 4 - 10 min.  
Sommer 12 - 20 min.



Winter 4 - 6 min.  
Frühjahr/Herbst 8 - 15 min.  
Sommer 25 - 30 min.

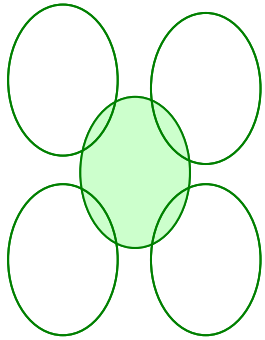


Winter 4 - 6 min.  
Frühjahr/Herbst 8 - 15 min.  
Sommer 25 - 30 min.



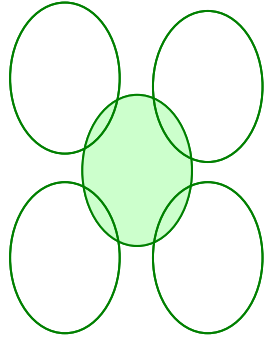
Winter 30 - 75 min.  
Frühjahr/Herbst 1 - 3 h  
Sommer 3 - 6 h

Lucht



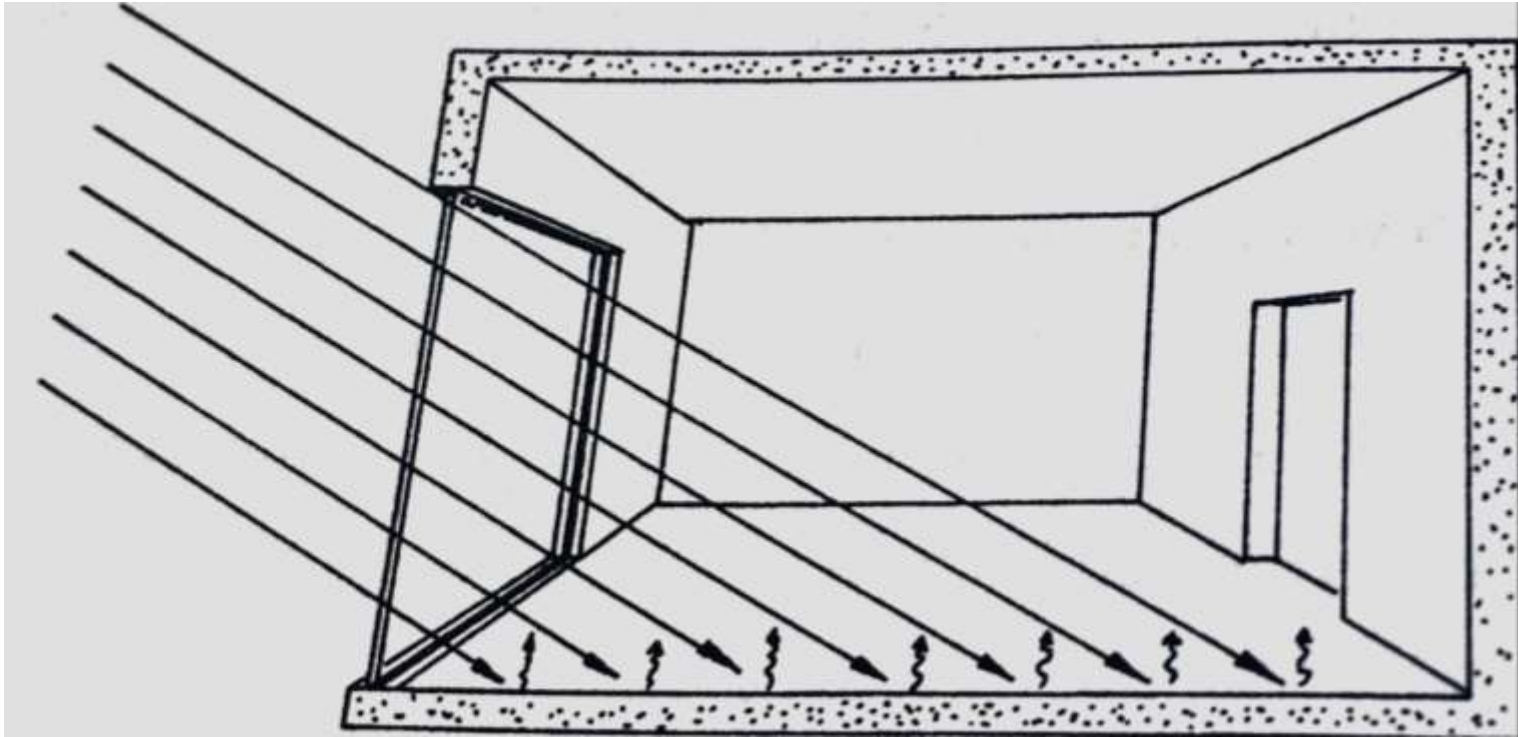
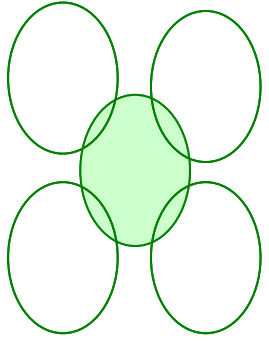
- Bouwbiologie per persoon 40-60 m<sup>3</sup>/uur
- Bouwbesluit 2,5 m<sup>3</sup> / u per m<sup>2</sup>
- Voorbeeld 10 m<sup>2</sup> slaapkamer slechts 30% !

temperatuur

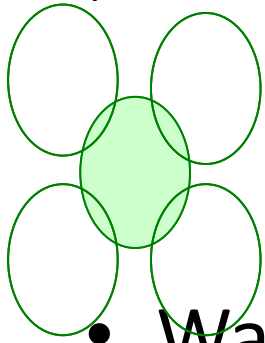




temperatuur



temperatuur

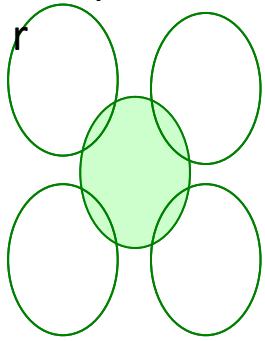


# Isolatiematerialen

- Warmte isolatie Rc waarde
- Warmte accumulatie
- Vochtopname
- Natuurlijk
- Brand

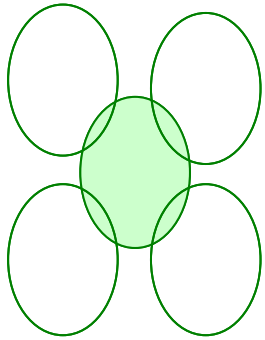


Temperatuu



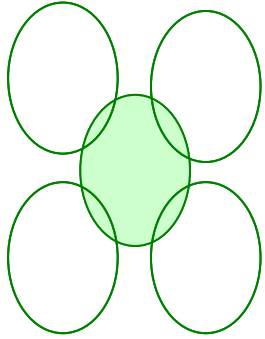
Hanf, Flachs u.a.	ca. 6,7 h
Holzweichfaser- bzw. Holzwolleleichtbauplatte	ca. 8,0 h
Mineralwolle 035	ca. 2,3 h
Hartschaum EPS 035	ca. 5,1 h

vocht



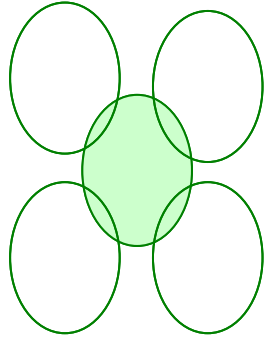
<b>Innenraumbekleidung</b>	<b>Dämpfung der Raumluftfeuchte-Schwankungen im Vergleich zu einem üblichen Innenputz</b>
Aluminiumfolie	ca. - 30 %
Zellulosedämmung hinter Gipskartonplatten	ca. + 15 %
Holzweichfaserplatten hinter Akustikelementen	ca. + 30 %
Nut- und Federschalung (unbehandelt)	ca. + 55 %
Holzbohlenwände (unbehandelt)	ca. + 70 %
Holzweichfaserplatten (unbehandelt)	ca. + 80 %

vocht

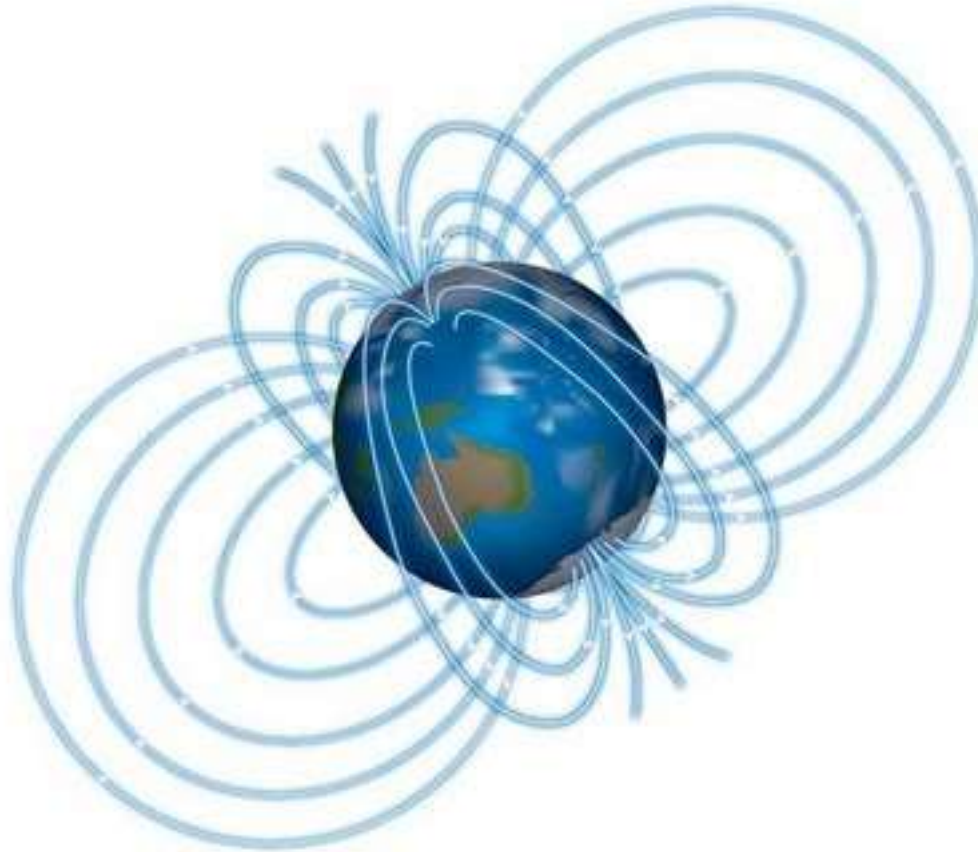
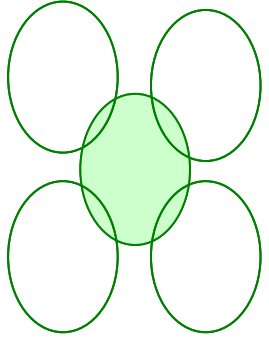


	s	Trocknungszeit in Tagen bei d = 30 cm	Trocknungszeit in Tagen bei d = 2 cm
Kalkmörtel	0,25	(225)	1
Porenziegel	0,28	252 (0,7 Jahre)	
Kalksandstein	1,20	1.080 (3,0 Jahre)	
Porenbeton	1,20	1.080 (3,0 Jahre)	
Bimsbeton	1,40	1.260 (3,5 Jahre)	
Schwerbeton	1,60	1.440 (4,0 Jahre)	
Zementmörtel	2,50	(2.250)	10

Straling

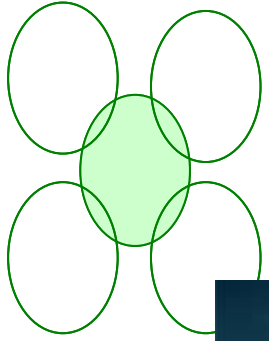


Straling



Magnetisch gelijkveld

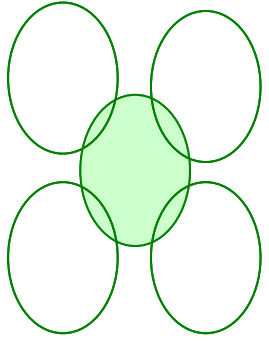
Straling



Elektrisch gelijkveld

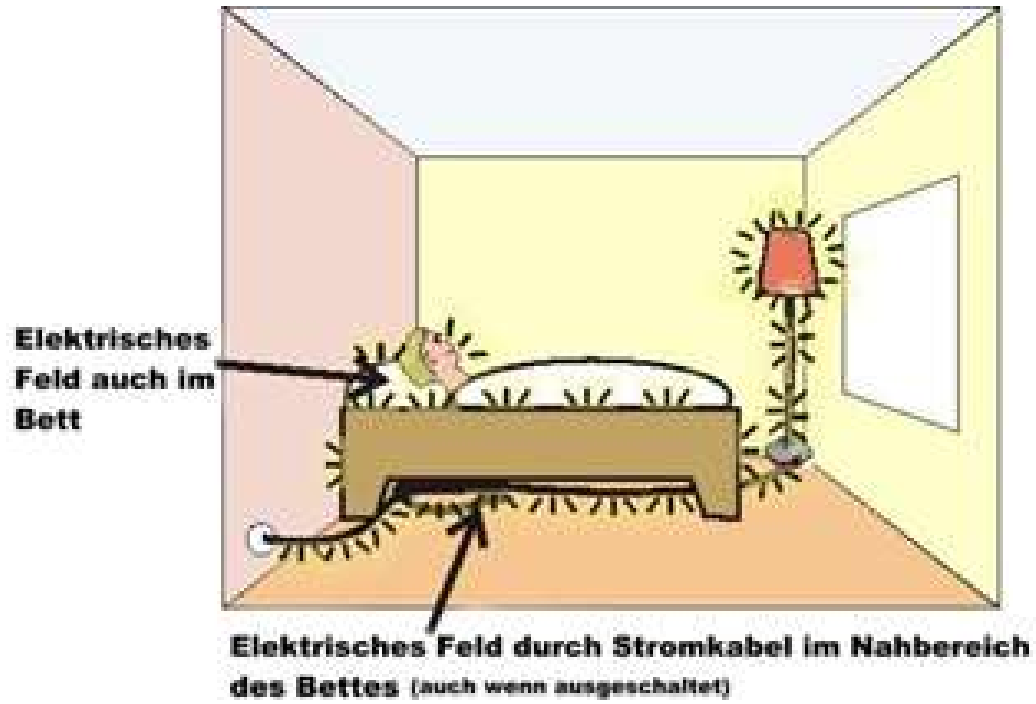
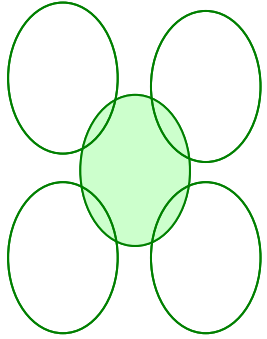


Straling



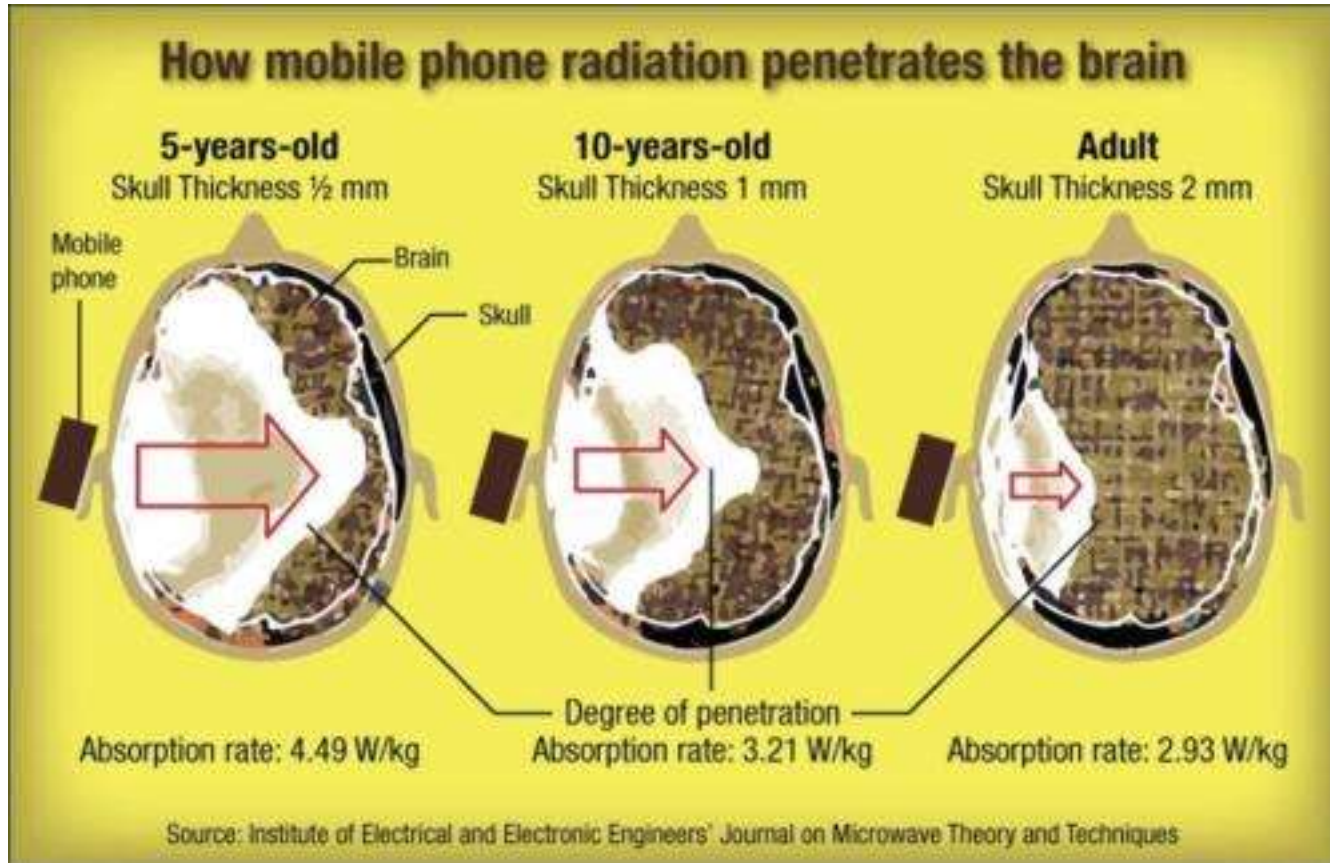
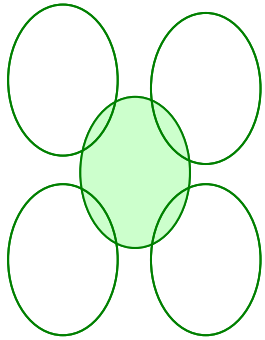
Magnetisch wisselveld

# Straling



Elektrisch wisselveld

# Straling



Elektromagnetische golven

# Materialen



Materialen

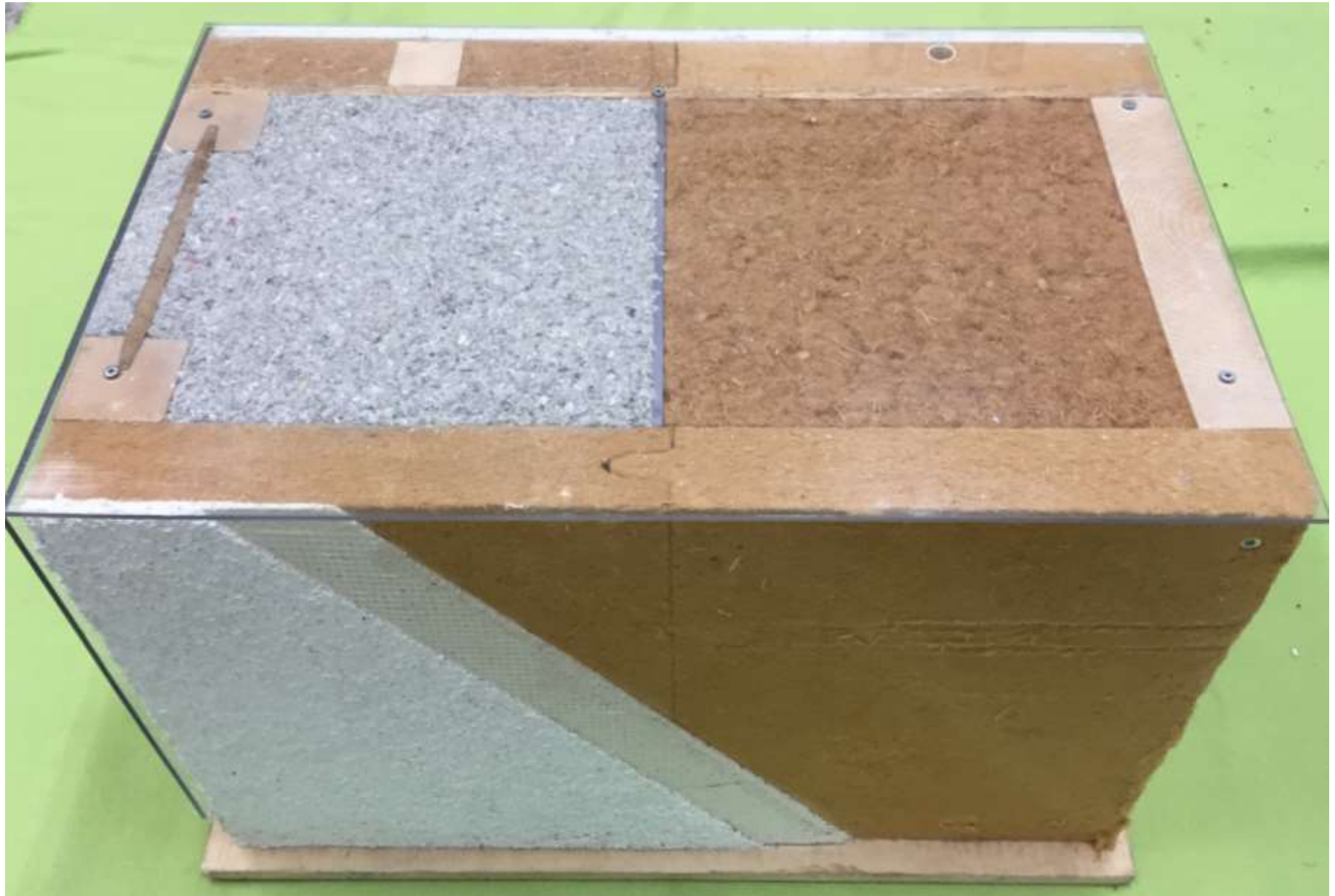


Materialen



Materialen









Luft-  
schadstoffe

Elektrosmog

Raumklima

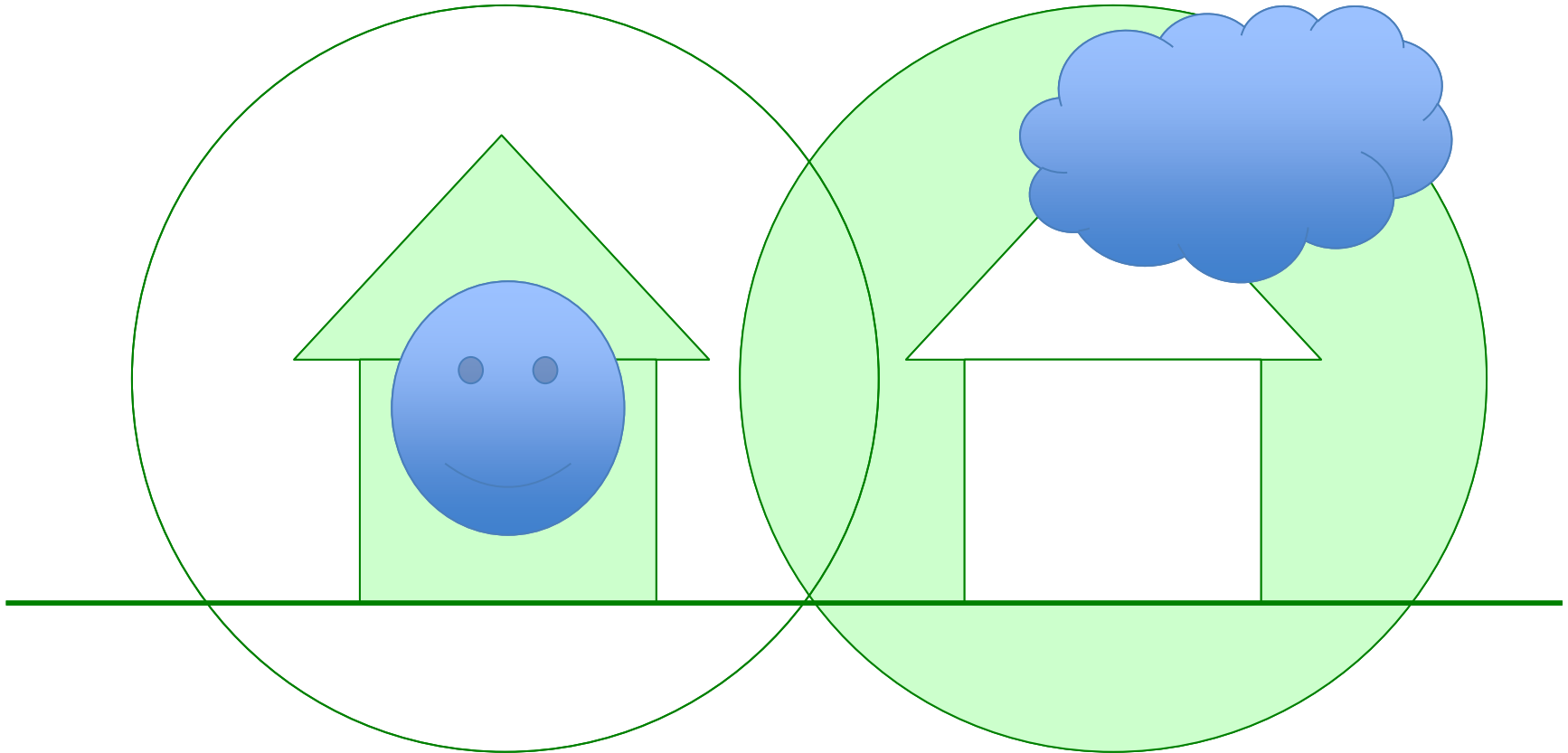
Lärm

Radioaktivität

künstliches  
Licht

**Bouw biologie**

**Bouw ecologie**



*Natuurlijke materialen*

**Gebouw  
inwerking**

**Gebouw  
uitwerking**