

# Green Building Council Denmark

## DGNB certification system



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# Green Building Council Denmark (DK-GBC)

- Founded in 2010, non-profit organization
- 290 members from the Danish construction and real estate industry
- Organization with 6 employees and 1 student assistant
- The vision is to promote sustainability
- We provide DGNB certification system to evaluate sustainability performance of city districts and buildings



*JJW Værkstedet  
DGNB Gold*



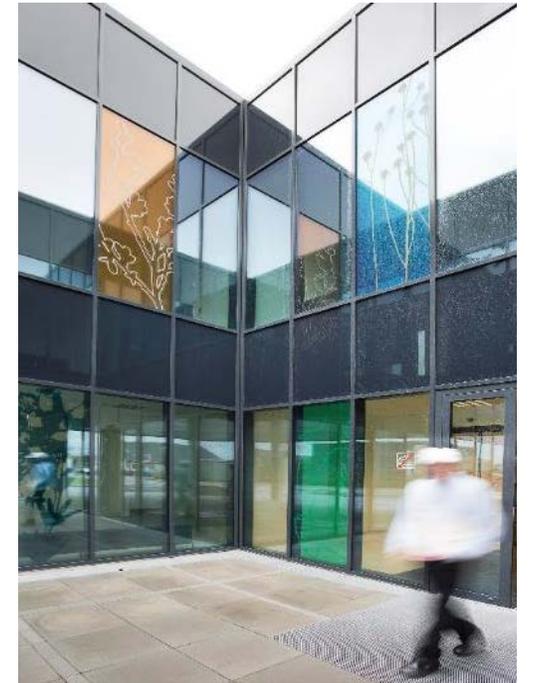
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# DGNB sustainable certification schemes

- New buildings and retrofit projects
  - City districts
  - Office buildings
  - Residential buildings
  - Hospital buildings
  - Educational buildings
  - DGNB FLEX
- Buildings in use
  - Office buildings



*Hurup Sundhedshus  
DGNB Gold*

## DGNB Certifications Denmark

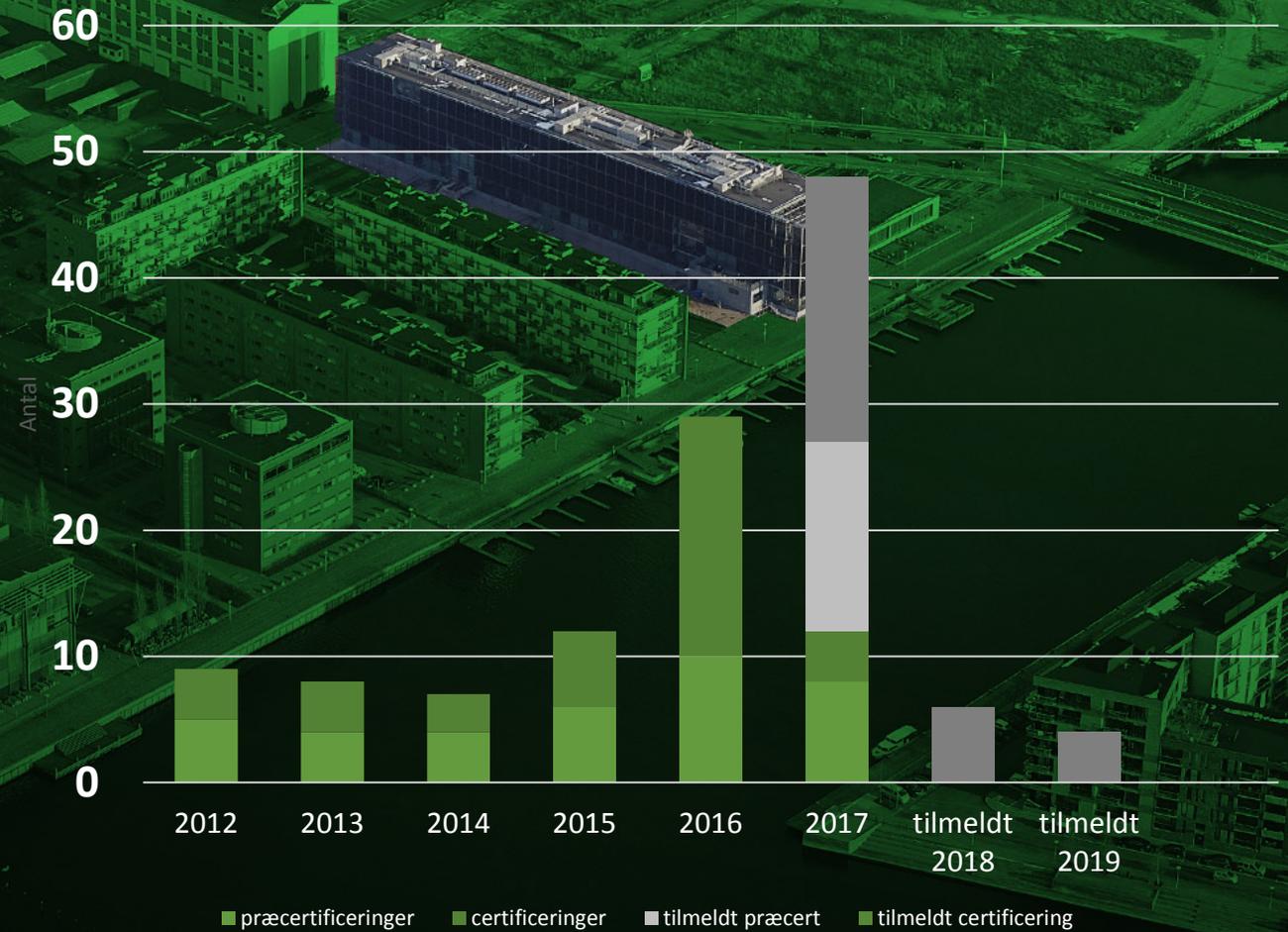
31 certified Buildings

22 office buildings

6 residential buildings

3 schools and day-care buildings

Another 40 buildings registered for certification





Type:

- Alle
- Etageejendomme og rækkehuse
- Nye kontorbygninger
- Bygninger i drift
- Hospitaer
- Undervisnings- og børneinstitutioner
- Byområder
- Konference og hotel

Certifikation:

- Certificeret
- Midtvejscertificeret
- Præcertificeret

 Social- og sundhedsskolen Skive Thisted Viborg	 Turbinehuset	 North Camp, Kousgaards Plads	 Orbicon - Nyt domicil	 Fasanvangen	 Hurup Sundhedshus
 Sæby Sundhedshus	 Brønderslev Sundhedshus	 KHV7	 GAPS Psykiatrisygehus	 Rambøll Domicil	 Administrationscenter Skanderborg
 Humlebien	 EAAA, Erhvervsakademiet Århus	 Skagen Redningsstation	 Green Solution House	 Alfa Laval	 Ernst & Young Domicil
 Green Lighthouse	 Company House Aarhus	 Pakhuset, Langelinie Allé	 Kamelen, Nordhavn	 Buddinge Port - MOE Domicil	 Sundhedshus Pandrup



## Publikationer

På denne side finder du alle miniguider og brochurer, som DK-GBC har udgivet.

Alle kan downloades i pdf-version eller bestilles i hardcopy her fra hjemmesiden.

Siden december 2014 har DGNB-manualen for nye kontorbygninger desuden været offentligt tilgængelig her på hjemmesiden og kan bestilles i pdf-format gratis såvel som købes i hardcopy. Det samme gør sig nu gældende for DGNB-manualen for etageejendomme og rækkehuse.

Ved bestilling af hard-copy materiale kan man forvente leveringstid på op til 2 uger.



### DGNB-manual for nye kontorbygninger 2016

Bestil vores manual til kontorbygninger.



### DGNB-manual for Etageejendomme og rækkehuse 2016

Bestil vores manual til etageejendomme og rækkehuse.



### Guide til DGNB for bygninger

Guide til DGNB giver en overordnet indføring i bæredygtighedsforstå...



### Guide til DGNB for byområder

Guiden til byområder er en 50 sider lang brochure, som giver et ove...



### Skab ny værdi i byggeriet

Læs eller bestil brochuren her.



### Sådan kommer du i gang med DGNB

Brochuren er udarbejdet af SmartCityDK og giver et overblik o...



### Markedsundersøgelse af bygherre 2016

Bæredygtigt byggeri vinder indpas.



### An introduction to DGNB

An introduction to DGNB



### Markedsundersøgelse af lejer 2016

Undersøgelsen viser virksomhedernes opfattelse af bæredygtighed og ...



### DGNB introbrochure 2016

Denne brochure er en introduktionsbrochure til værdiskabelsen i DGN...



### Materialebrochure

Bestil vores materialebrochure.

**OPEN SOURCE**

Del siden



# Short introduction to DGNB certification system



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# Sustainability?



# DGNB is adapted to Danish conditions

- DGNB is lifecycle-oriented
- Holistic evaluation of environmental, economic, and social aspects
- DGNB is based on European standards
- DGNB was launched in Germany in 2008, launched in Denmark in 2010
- DGNB is adapted to Danish conditions



*Existing building  
Not certified*

# Sustainability definition



*Holistic  
sustainability*



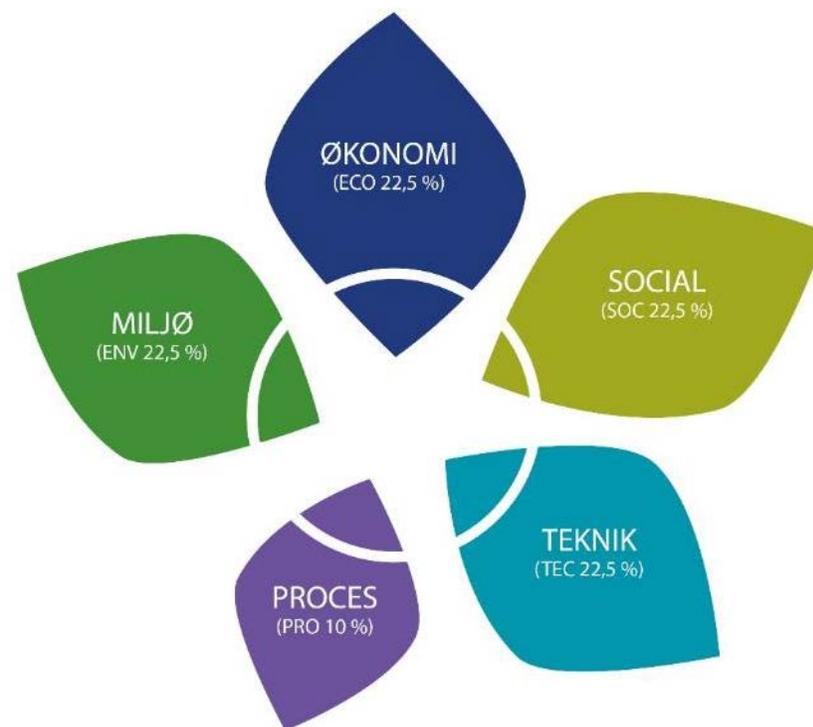
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DGNB

# The five DGNB qualities



*The five  
DGNB qualities*

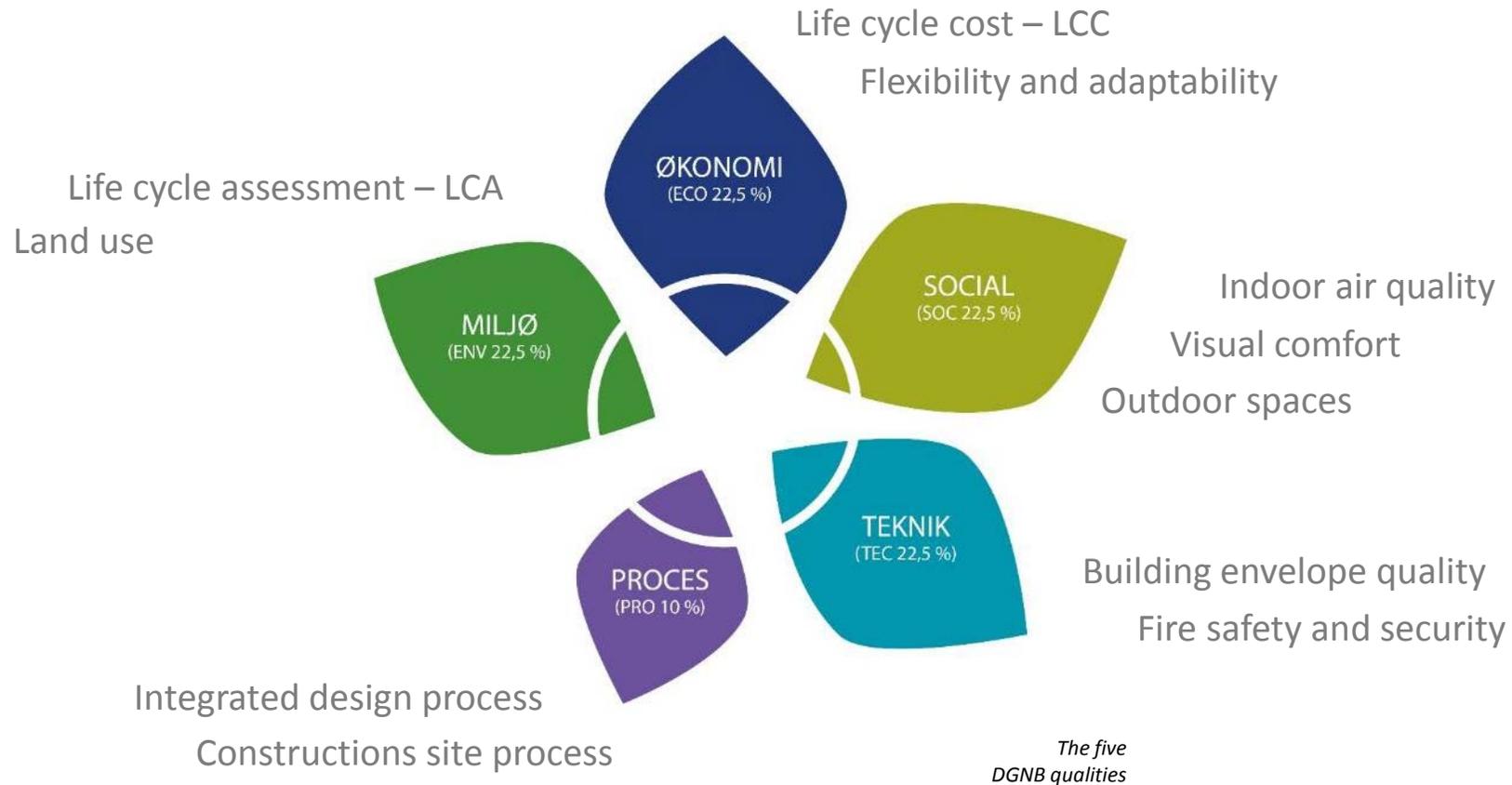


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# The five DGNB qualities



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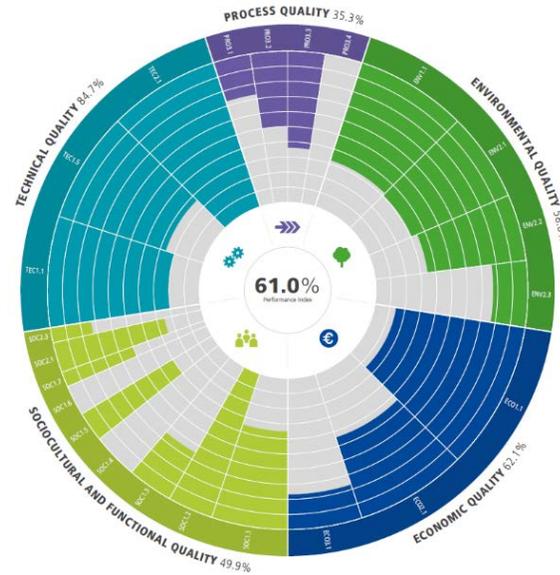


# DGNB scores

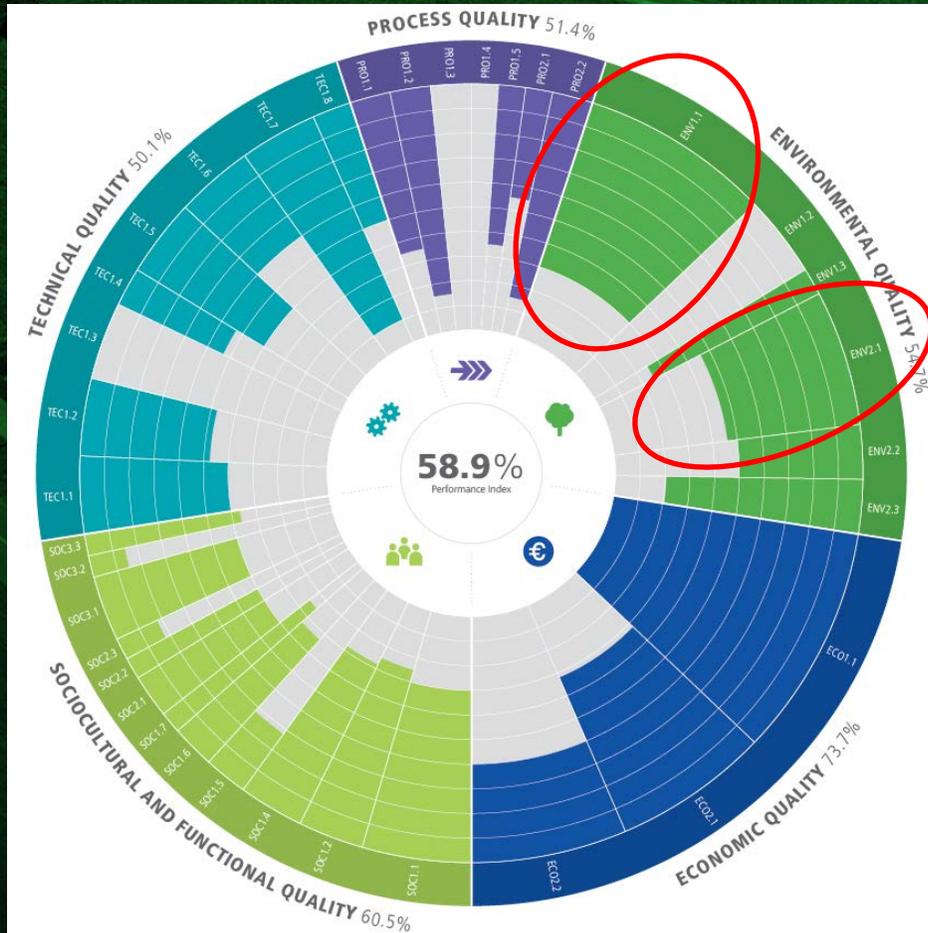


DGNB weights and scores

# Communication of results



*DGNB plaque and flower chart*



## LCA – one calculation, 2 Results

- ENV1.1 Environmental impacts
- ENV2.1 Primary energy consumption
- Total of 13,5 % of score

# LCA calculations rules

- In accordance with EN-15978
- Include modul D
  - Potential for reuse, recycle
- 50 years reference study period
- Electricity and district heating:
  - National energy mix
- Fixed estimated service life

Modul	A1-A3			A4-A5		B1-B7							C1-C4			D	
Lifecycle stages	Product Stage Construction			Process Stage		Use Stage							End-of-Life Next			Next product system	
Processor	<b>Raw material supply</b>	<b>Transport</b>	<b>Manufacturing</b>	Transport to building site	Installation into building	Use /application	Maintenance	Repair	<b>Replacement</b>	Refurbishment	<b>Operational energy use</b>	Operational water use	Deconstruction /demolition	Transport to EoL	<b>Waste processing</b>	Disposal	<b>Reuse, recovery or recycling potential</b>
	A1			A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	

# LCA calculation evaluation

## Environmental impacts

- Global Warming Potential (GWP)
- Ozone Depletion Potential (ODP)
- Photochemical Ozone Creation Potential (POCP)
- Acidification Potential (AP)
- Eutrophication potential (EP)
  
- Primary Energy non-renewable
- Primary energy Total

## Data quality

- Mostly generic EPDs
  - Esuco database
  - Ökobau.dat
  - EPD after EN 15804
  
- Reference values for all indicators

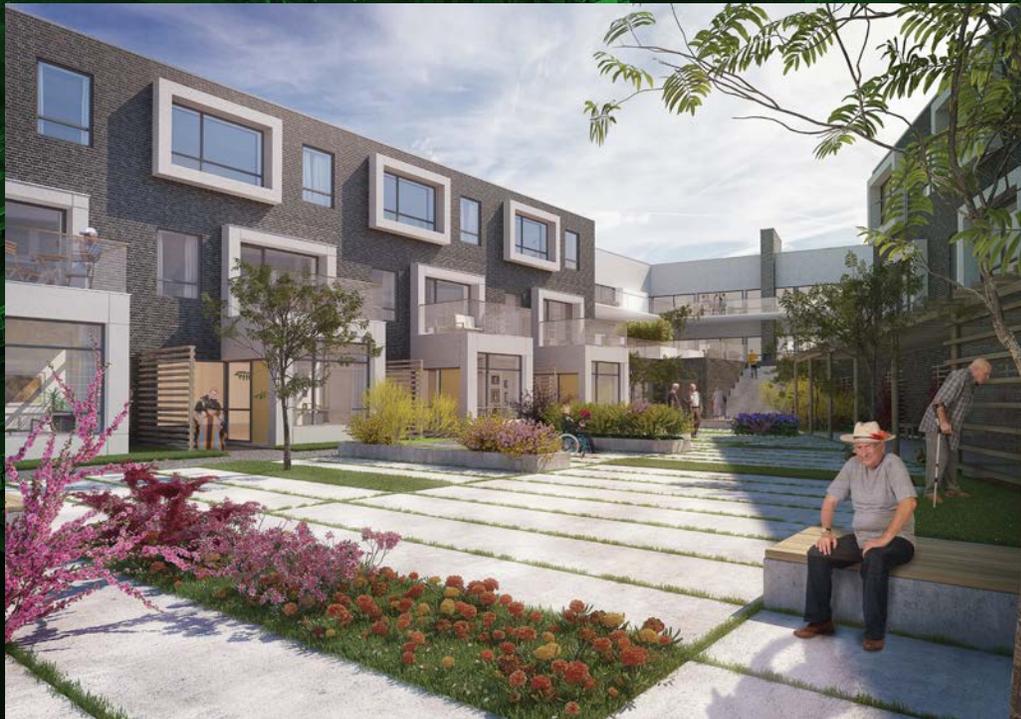
# LCA - results

Residential, 2 floors

Standard concrete loadbearing structures

Residential 2 floors

Wood construction, TLC



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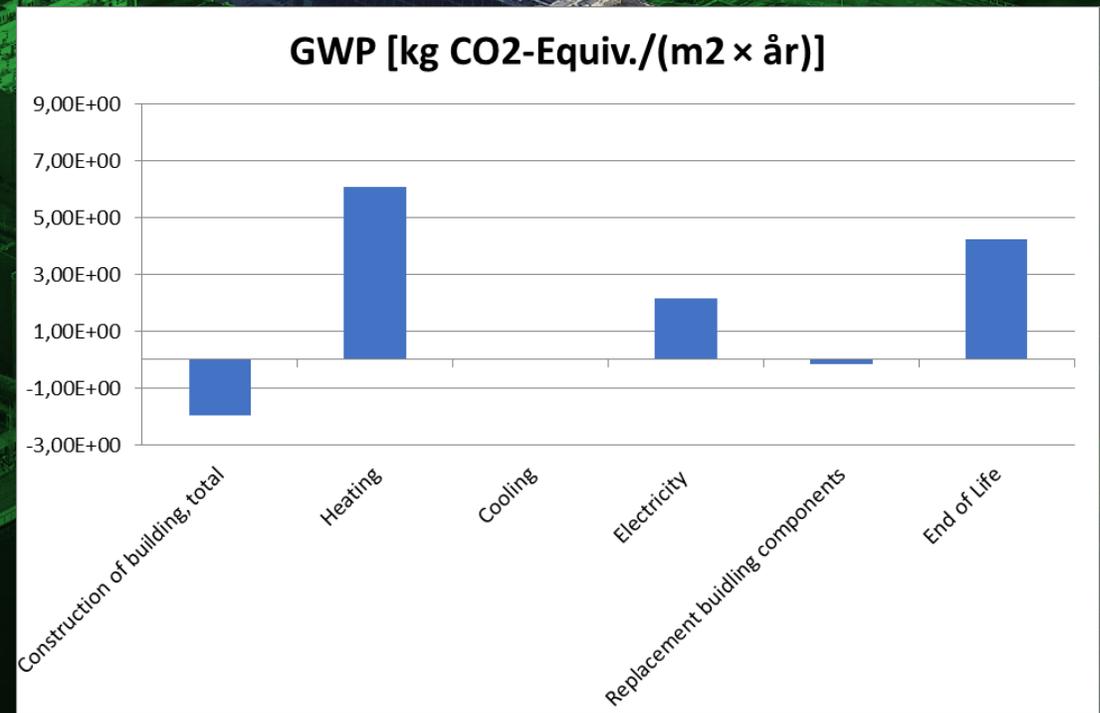
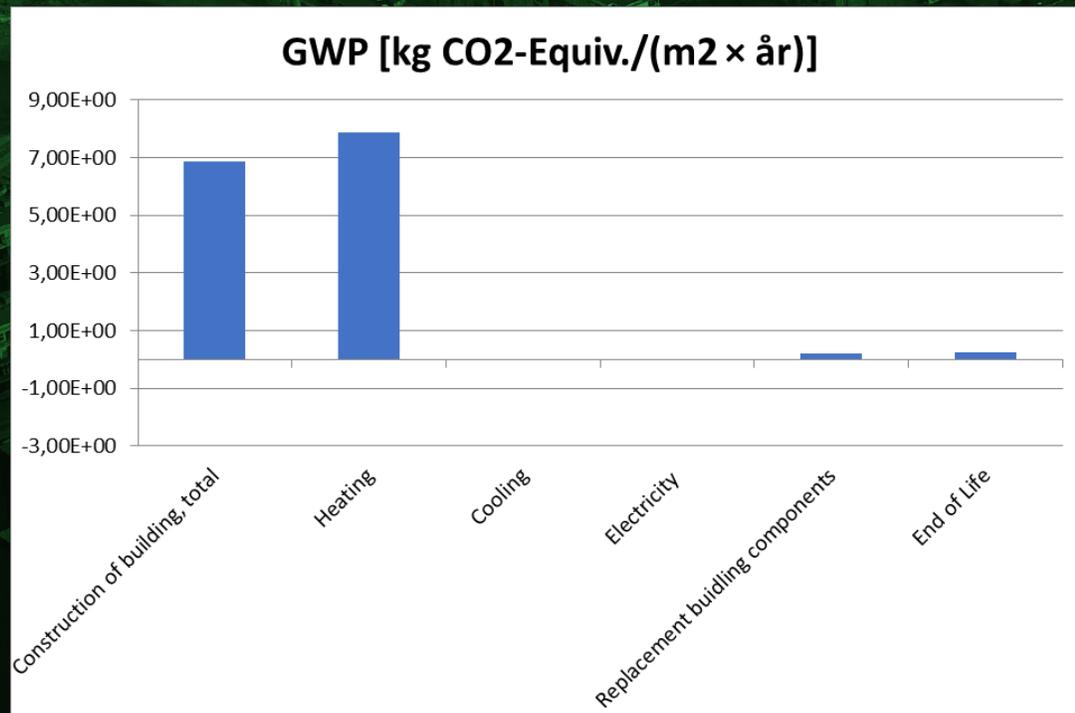
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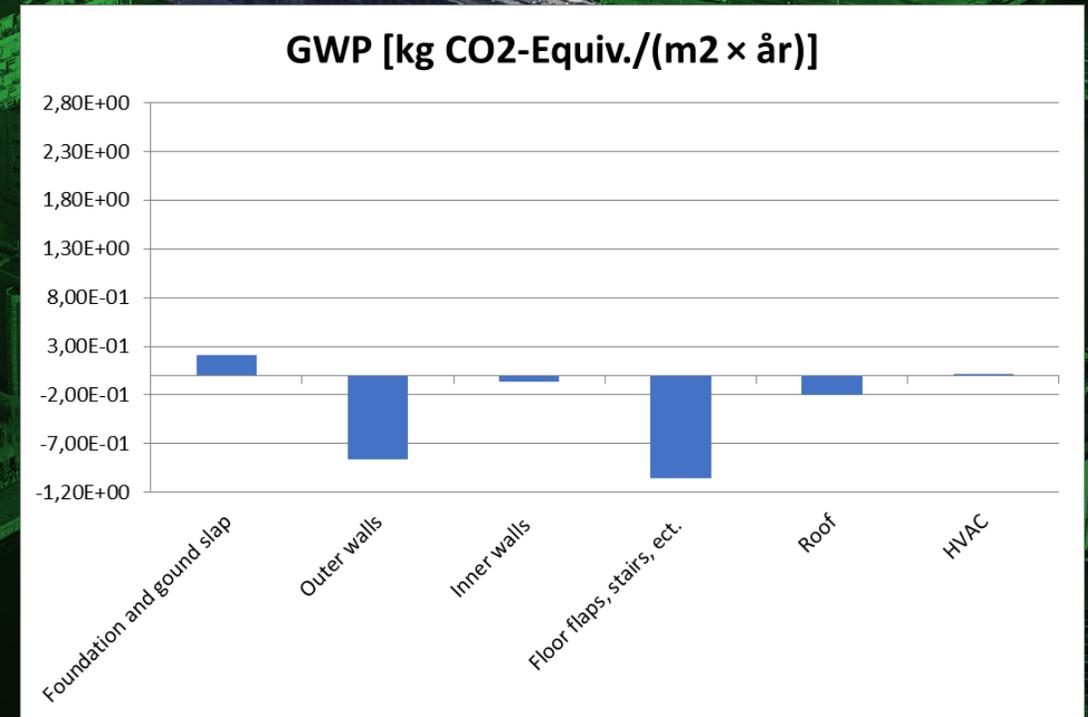
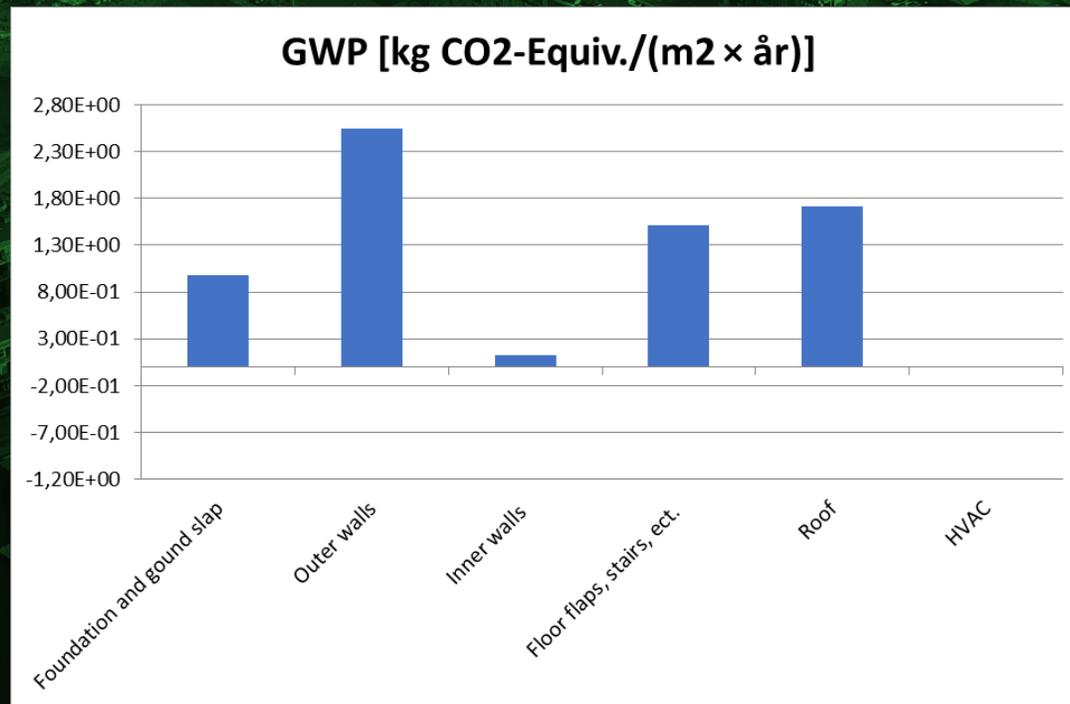
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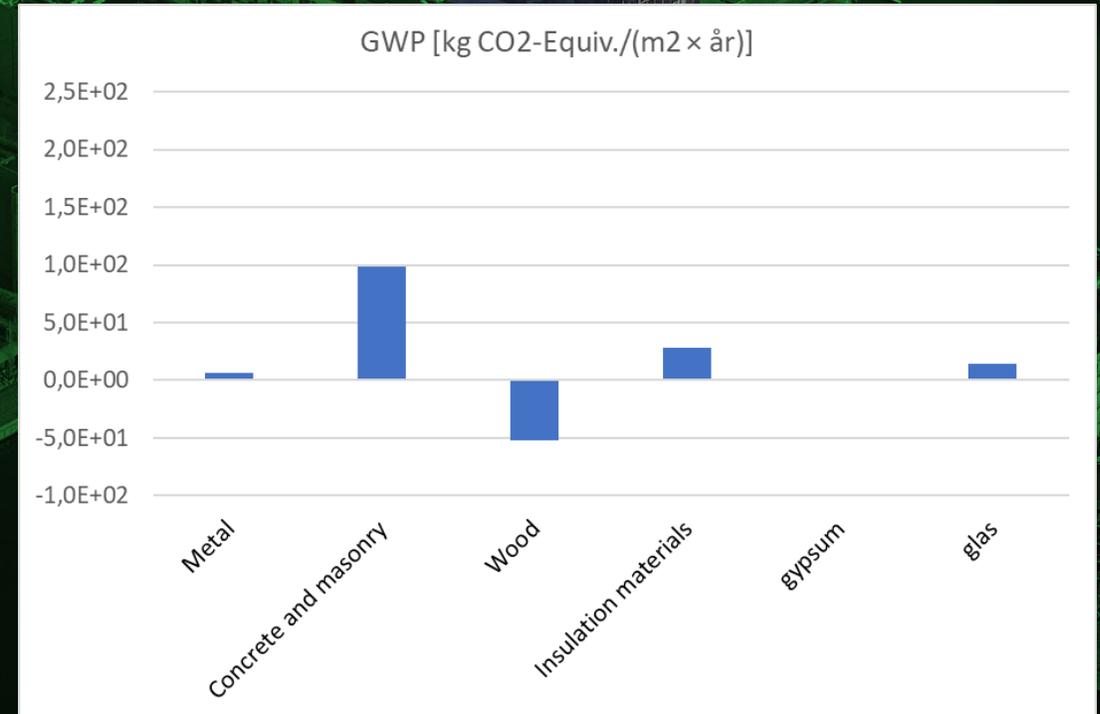
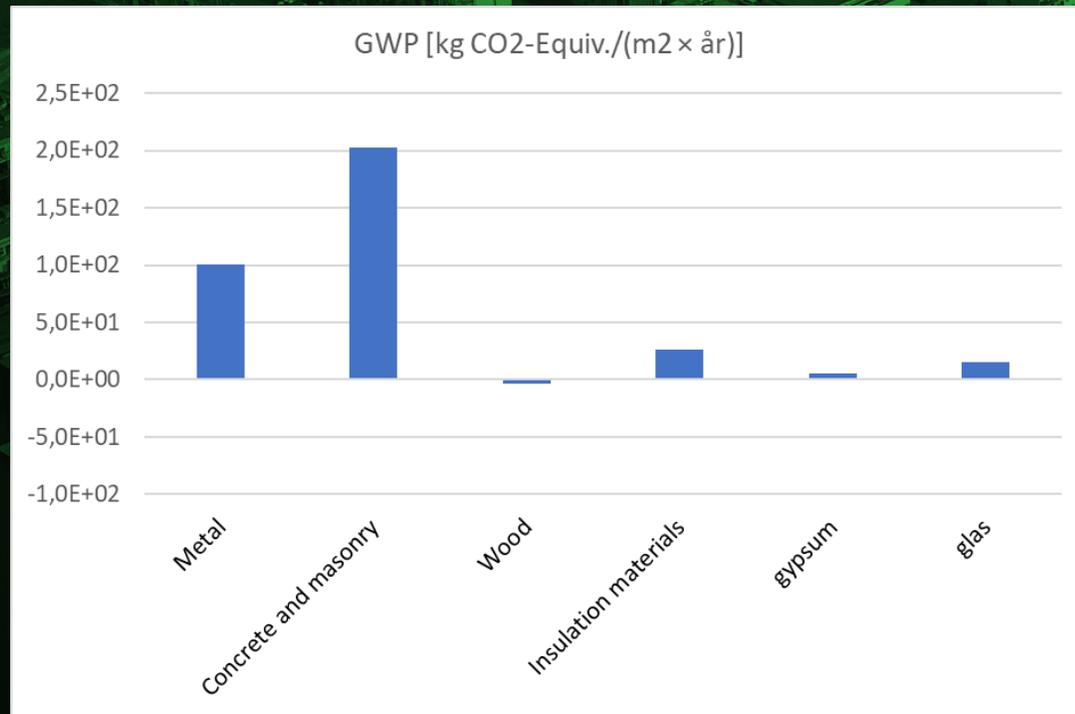
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Residential, 2 floors

Standard concrete loadbearing structures

Residential 2 floors

Wood construction, TLC



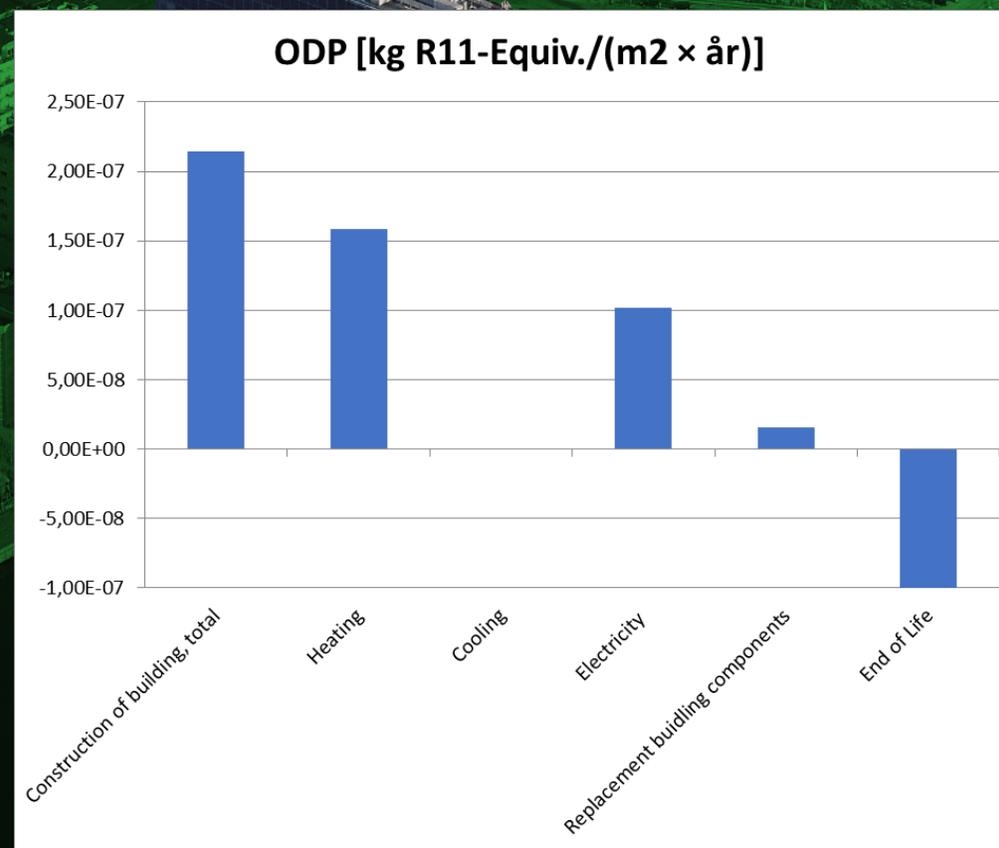
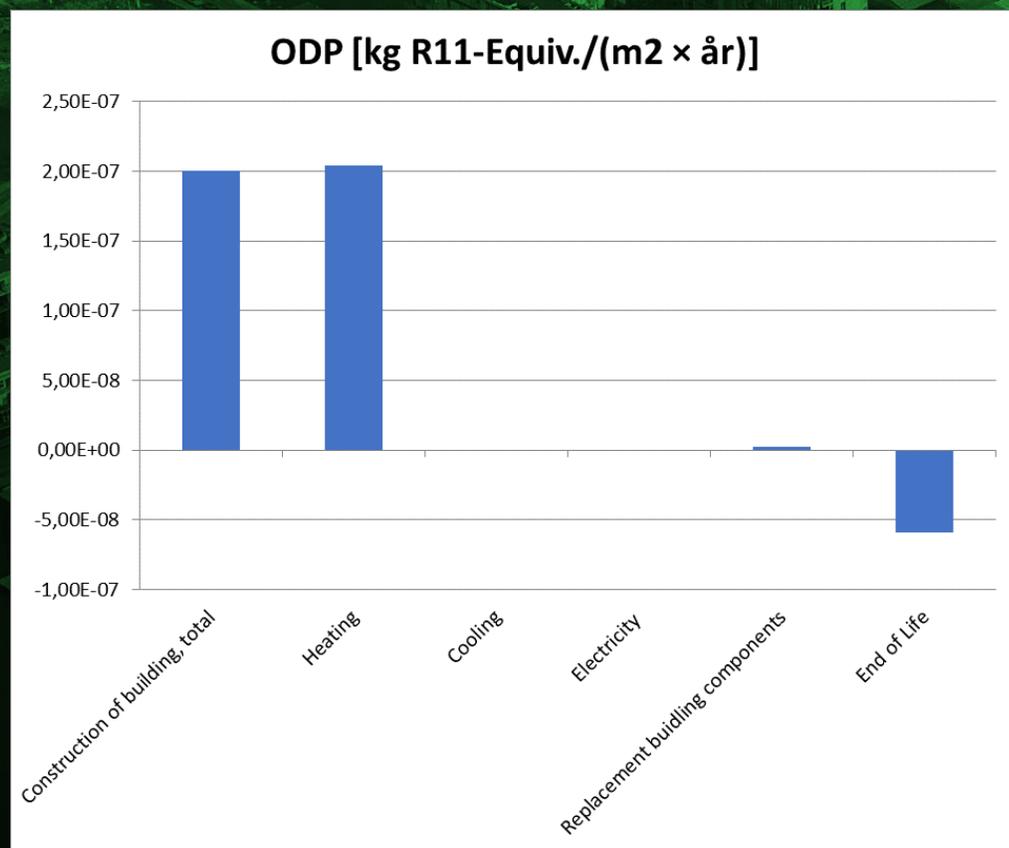
# LCA – results – Ozone depletion potentiel

Residential, 2 floors

Standard concrete loadbearing structures

Residential 2 floors

Wood construction, TLC



An aerial photograph of a city waterfront, likely Copenhagen, showing a long pier with several buildings. One building is highlighted in a bright red color. The water is dark, and there are other buildings and structures in the background. The overall image has a dark, monochromatic green tint.

# Questions?



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