

# CO<sub>2</sub> Performance Ladder Progress Report

**VenhoevenCS**  
architecture+urbanism

**Year**  
**Period**

**2021**  
**Q1 – Q4**

# Sustainability in Projects

*A:\01f R&D CORE\05 Projects\2022 Duurzaamheid vragenlijst projecten*

By the end of 2021, we send out a questionnaire to team leaders asking about the sustainability in the projects:

Please state to which topics your project contributes :

- a. Nature inclusive, biodiversity, resilient ecosystems
- b. Climate action, climate adaptive, CO2 reduction
- c. Circular economy, re-use
- d. Microcity, community, inclusive design, affordable housing
- e. Green mobility framework, walkable city, TOD, hubs, station areas
- f. Other (please specify)

Did any of your projects had a R&D or policy component?

# Sustainability in Projects

A:\01f R&D CORE\05 Projects\2022 Duurzaamheid vragenlijst projecten

Of the 87 projects we worked on in 2021, 62 projects were considered.

The other projects were either too small (like a visualization) or there were hardly any hours written on it (project just started or finished).

## Results

- 46 projects climate action, climate adaptive, CO<sub>2</sub> reduction
- 44 projects nature inclusive, biodiversity, resilient ecosystems
- 35 projects green mobility framework, walkable city, TOD, hubs, station areas
- 34 projects microcity, community, inclusive design, affordable housing
- 28 projects circular economy, re-use

4 projects touched on extra subjects, like *six capital approach*, SDGs, heritage and social interaction and impact.

8 projects had an R&D component, or influenced government policy or contributed to a more sustainable programme.

# Sustainability in Projects

A:\01f R&D CORE\05 Projects\2022 Duurzaamheid vragenlijst projecten

## Revenue % per theme

• Climate action, climate adaptive, CO <sub>2</sub> reduction	90,01 %
• Nature inclusive, biodiversity, resilient ecosystems	83,14 %
• Microcity, community, inclusive design, affordable housing	71,27 %
• Circular economy, re-use	54,34 %
• Green mobility framework, walkable city, TOD, hubs, station areas	42,54 %
• Six capital approach	0,32 %
• SDGs	0,38 %
• Heritage	0,32 %
• Social interaction and social impact	17,60 %
• R&D / policy	3,68 %

# Engagement

VenhoevenCS not only has an obligation to its own operations and projects, but also to other parties in the construction chain. We even have an obligation to the wider public: creating awareness and pushing policy agenda's are part of our efforts. Our PR team is crucial in this, and it did a terrific job!

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11mo • 📍

Inner city green buildings - [Danny Esselman](#) lectures on how nature inclusive building can become a success in a city like Dordrecht.

Join online tomorrow via this link: <https://lnkd.in/gYPd8Xf>

Lecture hosted by Stichting De Stad Dordrecht:  
[https://lnkd.in/gS\\_R5E7](https://lnkd.in/gS_R5E7)

Image credit: design by VenhoevenCS (VDMA Eindhoven), render by bloomimages

#natureinclusive #greenbuilding #architecture #lecture #dordrecht #innovative #sustainability #design



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"We cannot afford to solve the transportation crisis first, the energy crisis second and the biodiversity crisis third; this means everything will be lost in 2100. We need radical changes for these interdependent systems, and urban planning can be the foundation for change."

Ton sat down with [Jeff Wood \(The Overhead Wire\)](#) to talk about the above and more! Listen via the link below!

<https://lnkd.in/gFXyGgPQ>

#talkingheadwayspodcast #urbanplanning #streetsblogusa #design #future #imagination #future #transitions #solutions #analysis #optimism #inspire #talk #lecture #bna #architects



Talking Headways Podcast: Culture Is Designed Every Century

usa.streetsblog.org • 5 min read

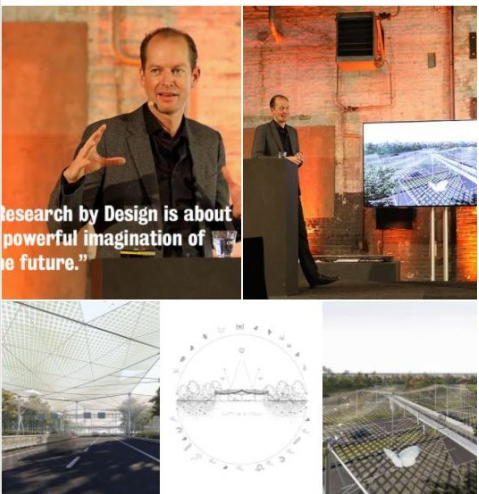
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"Research by Design is about a powerful imagination of the future."

Architect [Hermen Jansen](#) (VenhoevenCS) was invited to share our vision on Research by Design at [BNA Architects Day](#). He explained how we, as an innovative design office, want to contribute to the transitions to a fully-fledged sustainable society in every possible way. One way of doing this is making an effort to discover and inspire new solutions through research by design. Case study was our project 'The Butterfly Effect'.

Check out the full talk via this link:  
<https://lnkd.in/gMH3cE2t>

#researchbydesign #research #design #architecture #innovation #vision #imagination #future #transitions #solutions #analysis #optimism #inspire #talk #lecture #bna #architects



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THE HIGH GROUND - IABR EXPO

VenhoevenCS was invited to join IABR-Atelier Dordrecht, led by [West 8](#), to examine ways to use water safety as a leverage for a new and widely supported sustainable urban development strategy.

We explored the possibility to roll out a new micro-mobility route between De Staart and the city center. This route will naturally and recognizably double as the evacuation route to the safety of De Staart. In the event of a calamity, new facilities along this route (such as a theater or a mobility hub) function as the first shelter for evacuees, while, on a daily basis, they serve as a connecting element in the urban fabric.

On show at Biesboschhal Dordrecht until 14 August 2021  
<https://lnkd.in/gAzn9pQ>

International Architecture Biennale Rotterdam George Brugmans Models Studio KU+ Other parties involved PosadMaxwan strategy x design, EGM architecten, Donna van Milligen Bielek Image 4/5 by Aad Hoogendoorn - Made by Mistake

#downtoearth #iabr #destaart #dordrecht #flood #design #infrastructure #hub #architecture #venhoevenCS #escape #research #sdg #sustainabledevelopmentgoals #waterleverage



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THE BUTTERFLY EFFECT 🦋

Together with [DS Landschapsarchitecten \(Amsterdam\)](#) and [Studio Solarix](#), we developed an ingenious proposal that generates renewable energy while restoring natural connective routes and reducing noise pollution – all encapsulated in a poetic design.

Insects were chosen as the starting point of the design, as influencing the smallest scale can create the biggest impact. This proposal offers a helping hand to small-scale ecosystems, but in doing so contributes to a large-scale approach to climate change and biodiversity loss: the Butterfly Effect!

Although the design for an ultra-light web over the motorway was created specifically for the design challenge location on the A67 motorway near Strabrechtse Heide heath, it can easily find applications in infrastructure in other parts of the world. Therefore... we are looking for a motivated partner to complete a first pilot project!

Curious? Watch the video!

#butterflyeffect #design #architecture #sustainability #innovation #solarenergy #biodiversity #climatechange #infrastructure #landchapstriennale #socialcapital #natureinclusive #renewableenergy #noisebuffer #inspirebynature #staatsbosbeheer #kunstlocbrabant #hetgroenewoud Kunstloc Brabant Staatsbosbeheer



Cecilia Gross Architect Partner VenhoevenCS

requires a different view of the world.

# Engagement



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Join the online conference URBANISM NEXT Europe this Friday (11 June, 11.30-13.00 CEST) where **Ton Venhoeven** will be panelist in a meeting focused on Exploring and Designing the Future (session 7.B.)!

In the meeting, our 'City of the Future' concept will be introduced by **Jutta Hinterleitner**, whereafter **Ton Venhoeven** and **Robbert Guis** will be panelists in a discussion on integral city design. Other speakers in this session are **Marije ten Kate**, **David Hamers**, and Paul Gerretsen.

Find out more about the event via the website below and register directly!

[https://lnkd.in/d9\\_Y8DY](https://lnkd.in/d9_Y8DY)

#cityofthefuture #urbanism #urbanismnexteurope #conference #session #design #architecture #urbanplanning #future #panelist #discussion #online #join #urbanismnext #event #innovation #designthinking #europe #urban #integral #cityplanning #UNextEU



Urbanism Next Europe 2021 | LinkedIn

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Did you know that by 2050, 68% of the world's population will live in urban areas?

The C2C webinar invites **Ton Venhoeven**, **Arne J. Lijbers (Mecanoo)** and **Marco Te Brömmelstroet (University of Amsterdam)** to discuss and share their insights with regards to sustainable ways of transportation within the framework of a circular economy.

What: Cradle to Cradle and Urban Mobility webinar

When: June 17, 10.00 - 11.30

Where: join online and register via <https://lnkd.in/erwrSU3>

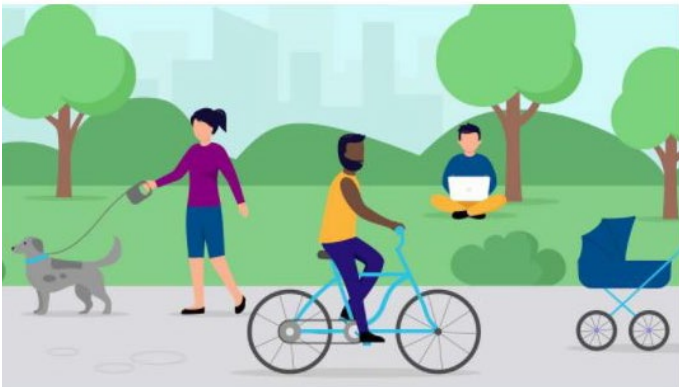
See you then!

#Cradle2CradleCafe #urbanmobility #urban #mobility #webinar #circulareconomy #climatechange #environment #sustainability #venhoevens #cities #C2C #join #online Peter Derkse



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**Ton Venhoeven** is one of the #peoplefixingtheworld on BBC World Service discussing solutions to the world's problems alongside C40 Cities Helene Chartier & #CarlosMoreno #15minutecity <https://lnkd.in/gP9bt7c>



BBC World Service - People Fixing the World, The 15-minute city

bbc.co.uk • 1 min read

**Any Questions  
Or Remarks  
Or Suggestions?**

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# CO<sub>2</sub> management system

*Continuous improvement* of insight and CO2 reduction measures regarding:

1. Our operations
2. Our projects
3. In our value chain

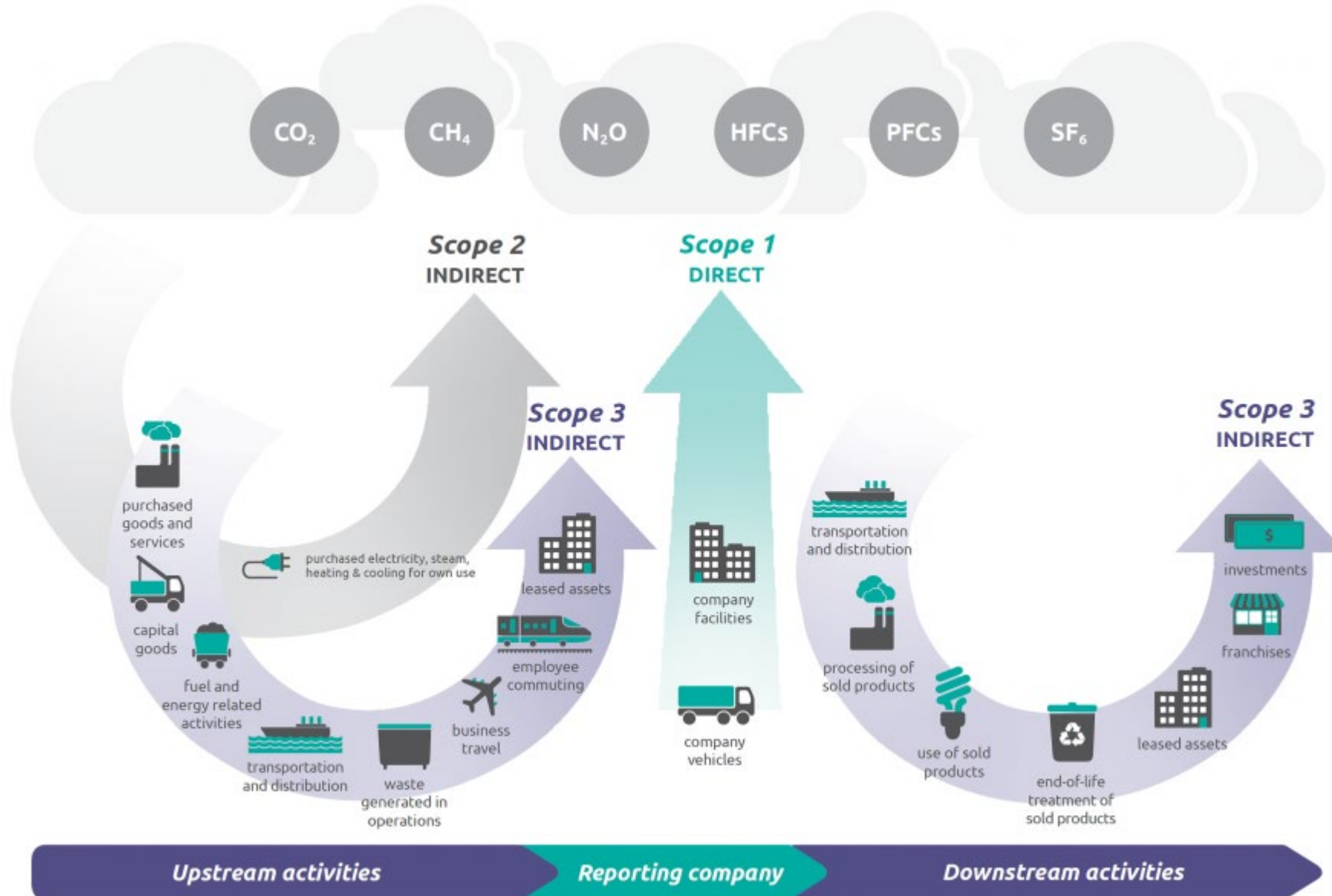
Additional requirements for

1. Communication – letting others know what you do
2. Participation - influencing

# Scope Definitions

- |   |  |
|---|--|
| Scope 1   | Direct emissions inside the company<br>use of gas for heating the office   |
| Scope 2   | Indirect emissions inside the company<br>through purchased energy e.g. electricity use in the office and mobility for business activities  |
| Scope 3<br><i>Upstream</i><br><i>Downstream</i> | Indirect emissions in the value chain<br>commuter mobility, use of paper, mobility by suppliers (e.g. cleaning, waste, all kinds of deliveries) and emissions made by subcontractors   |
| Scope 3<br><i>Analysis</i><br><i>Initiative</i> | Value chain analysis and initiative<br>the analysis of CO <sub>2</sub> emissions in one of the value chains we are active in<br>a planned approach to realize a pre-determined reduction objective in the values chain on the basis of the analysis, together with the partners in the value chain |

# Scope Definitions



# Value chain initiative

In 2020, we created a new chain analysis and set goals for the next 6 years.

## Shadow costs of building elements

We have the ambition to design with shadow costs. We would like to show our clients and project partners the CO<sub>2</sub> repercussions of choices that are made regarding the material of building elements.

2020	2021	2022	2023	2024	2025	
0%	25%	50%	50%	75%	90%	of projects*)
1	1	1	2	2	3	primary building elements**)

\*) With a project, we mean a Dutch architectural project that will be built (no studies or urban planning)

\*\*\*) With primary building elements, we mean supporting structure, floors, walls, roofs, foundation, installations, finishings, etc.

# Goals

## Our CO2 reduction goals

### *A. Scope 1 + 2: General CO<sub>2</sub> Reduction*

20% reduction of emissions for scope 1 & 2 (operations and projects) in 2025 as compared to 2015, calculated as kg CO2 per FTE

### *B. Sub objective: gas consumption*

VenhoevenCS will reduce their emissions caused by gas consumption with 60% per FTE in 2020 compared to 2015

### *C. Sub objective: Business travel*

VenhoevenCS will reduce their business travel with 25% per FTE in 2025 compared to 2015

### *D. Scope 3*

In 2025, 90% of our Dutch building projects will have a paragraph in the design text stating the shadow costs of 3 primary building elements, including a clarification of CO2 reduction possibilities **This is our Environmental Impact Tool!**

# Progress General Reduction

## A. General Reduction CO<sub>2</sub> of 20% (2015-2025)

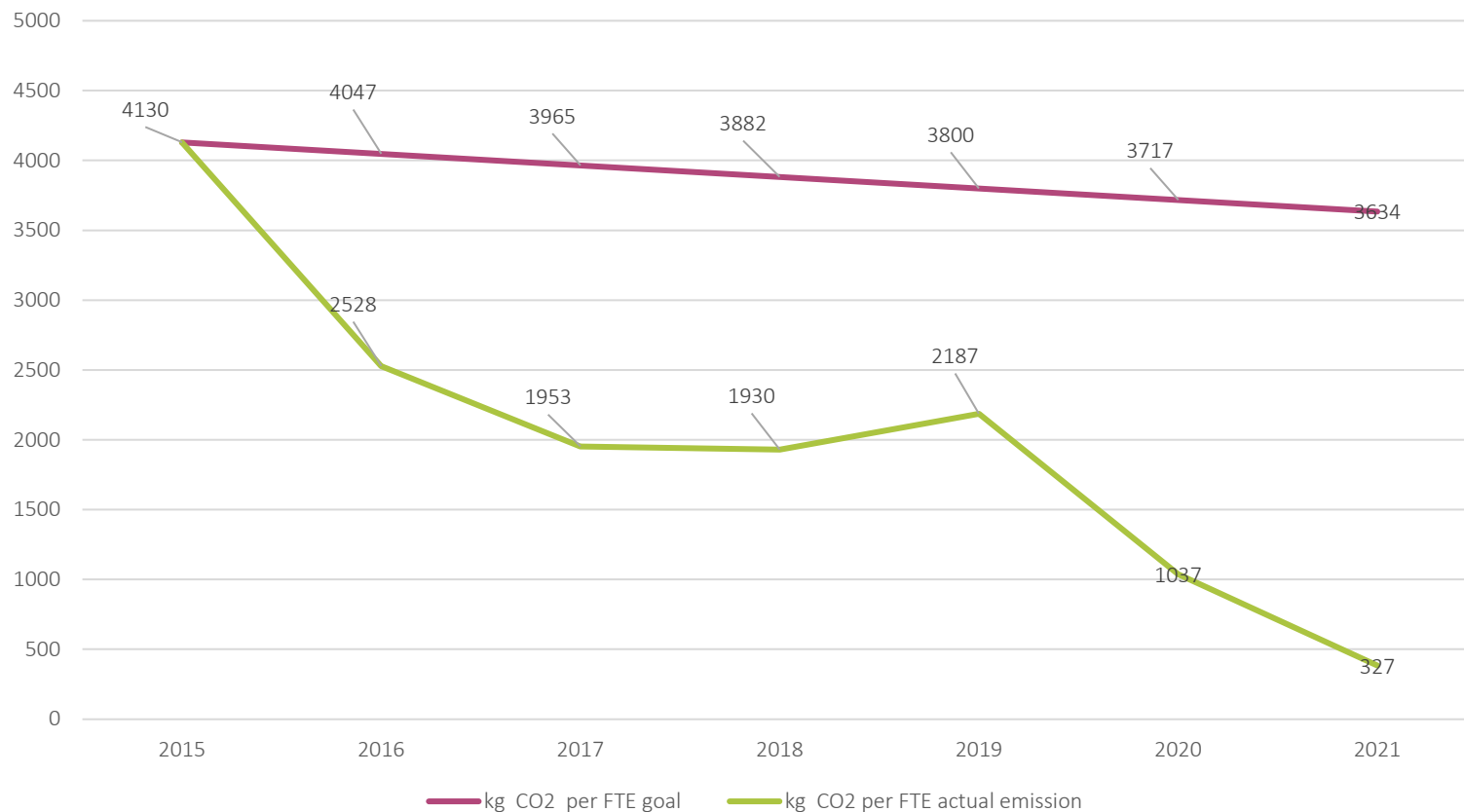
	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	<i>2025</i>	
Goal	4130	4047	3965	3882	3800	3717	3634	3304	kg CO <sub>2</sub> per FTE
Realized	4130	2528	1953	1930	2438	1037	327	...	kg CO <sub>2</sub> per FTE

Dutch benchmarks vary widely per type of organization. An organization that works

- mostly local and whose employees do not visit many relations, averages 1.000 kgCO<sub>2</sub> per FTE
- national and whose employees visit relations regularly, averages 4.000 kgCO<sub>2</sub> per FTE
- internationally and whose employees visit international relations regularly, or has a branch abroad, averages 12.000 kgCO<sub>2</sub> per FTE

# Progress General Reduction

Progress annual CO2 reduction VenhoevenCS



2019  
Increase!

2020  
Covid-19

2021  
Covid-19  
AND 37% increase FTE  
AND 65% increase m<sup>2</sup>

# Progress gas-use reduction

## B. Sub objective: gas consumption

	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	
Goal	153,6	135,2	116,7	98,30	79,87	61,40		kg CO <sub>2</sub> per FTE
Realized	153,6	86,80	71,9	72,88	74,80	72,34	35,98	kg CO <sub>2</sub> per FTE

*We switched to green (forest compensated) gas in May 2017*



# Progress Business Travel

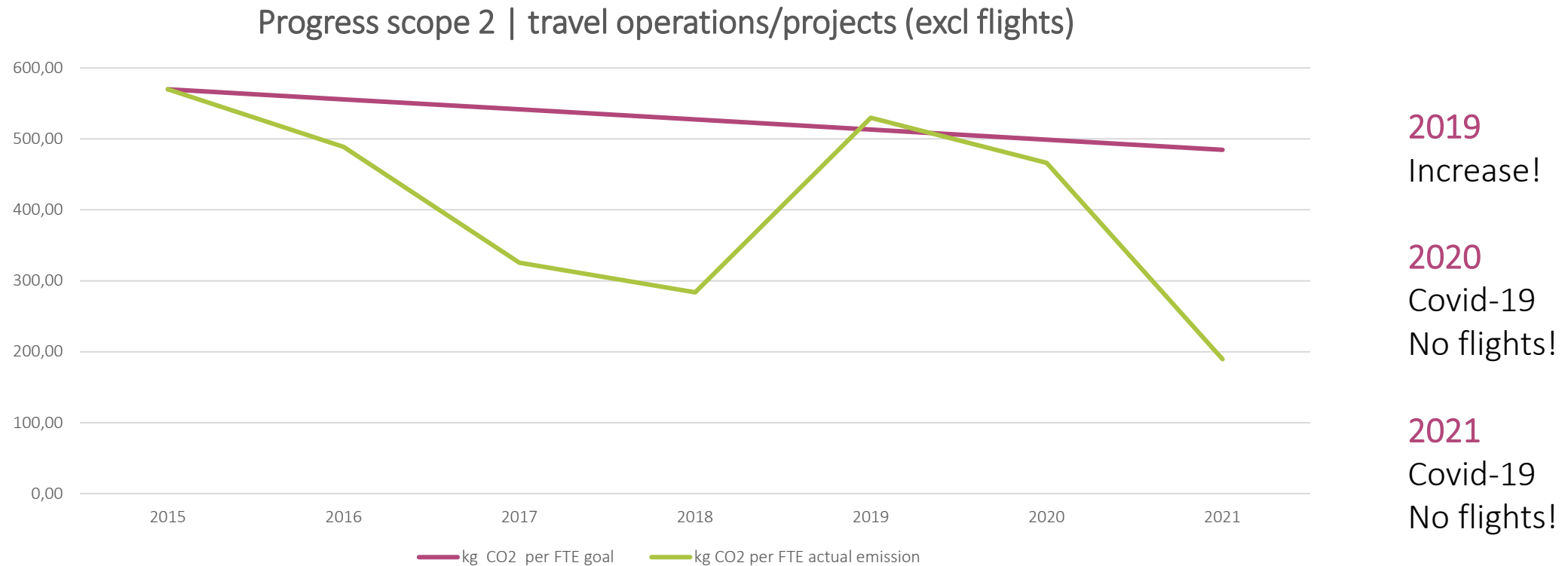
## C. Sub objective: Business travel

VenhoevenCS will reduce their business travel with 25% per FTE in 2025 compared to 2015.

Reduction CO<sub>2</sub> 25% through travel in our operations/projects (2015-2025)

	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	<i>2025</i>	
Goal	570	555,8	541,5	527,5	513	499	484,5	427,5	kg CO <sub>2</sub> per FTE
Realized	570	488,5	325,3	283,6	529,9	466,1	257,89	...	kg CO <sub>2</sub> per FTE

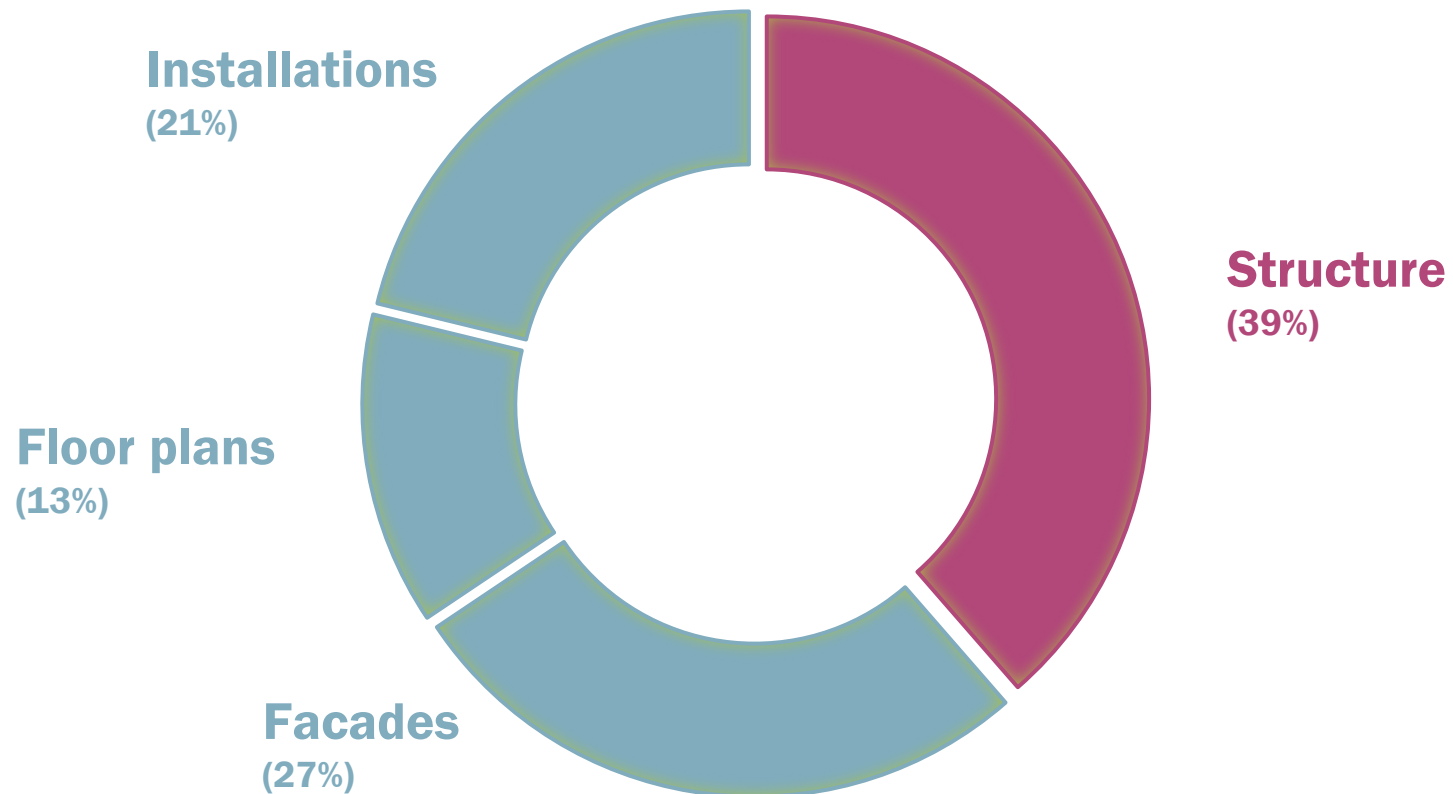
# Progress Business Travel



# Progress Scope 3

## D. Scope 3

The goal for 2021 was to have a template for 1 building element ready. But we had a delay in the implementation of the Environmental Impact Tool because we decided to work together with IMd for the further development of the tool.



# Progress Scope 3

## D. Scope 3



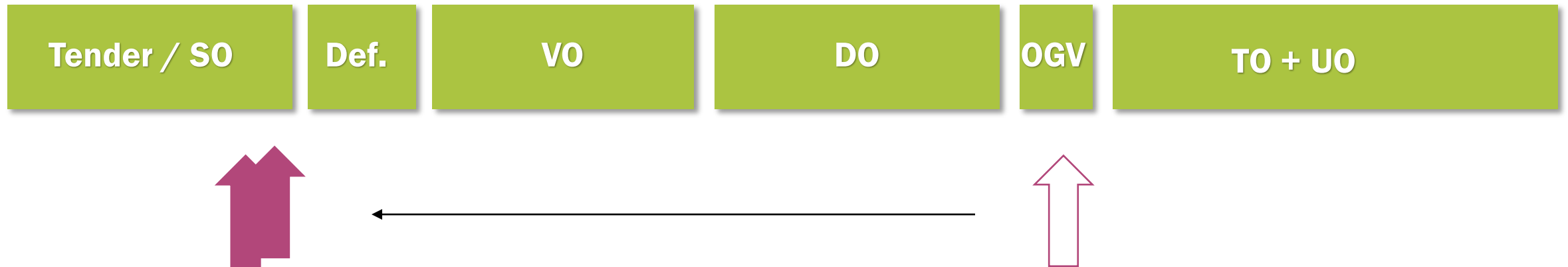
This is when the decision about (the sustainability of) the structure takes place



This is when the environmental impact of the structure is calculated for the first time

# Progress Scope 3

## D. Scope 3



This is when the calculation of the environmental impact of the decision on the structure should take place

# Progress Scope 3

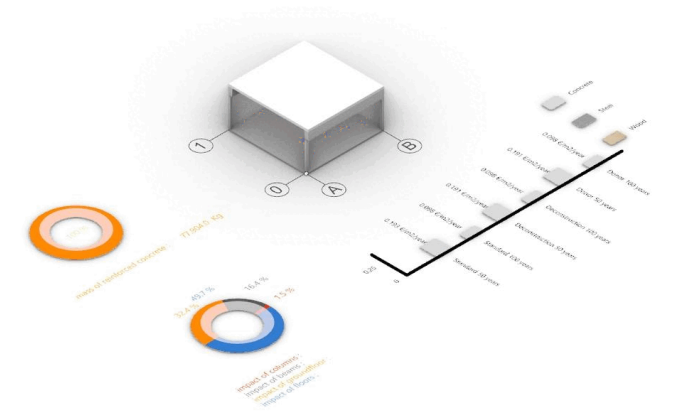
## D. Scope 3

There is a working Beta-version

In a couple of months, we will have a working tool for internal use:

**Structural Embodied Carbon Calculator V 1.0**

With internal use, we mean to use it in our projects, with our clients.



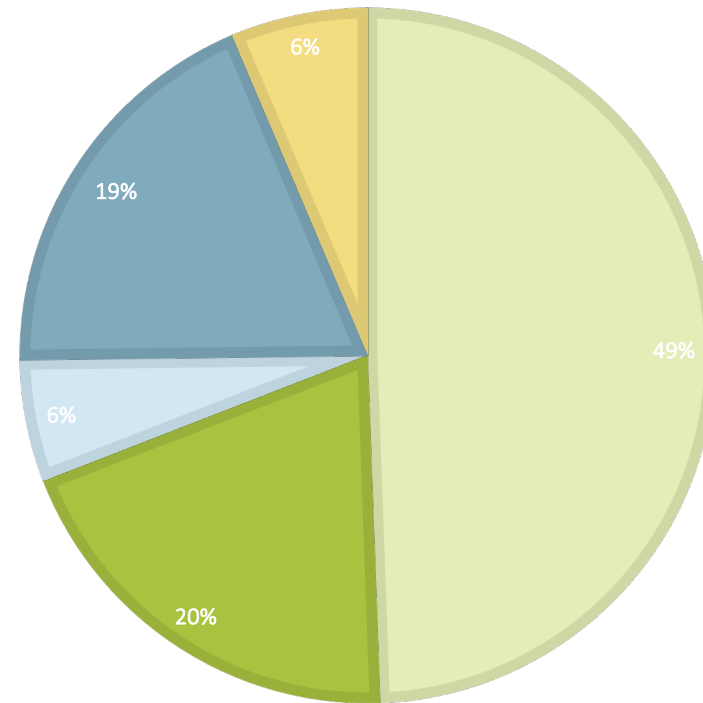
We still need to decide what we will do next. Perhaps we make the tool available for free, perhaps we will make it into a marketable and sellable product, further develop the tool for facades, etc.

# Total footprint 2021

**18.690 kg**  
**[2020: 44.577]**

## CO2 FOOTPRINT

■ Mobility ■ Suppliers / Transport of goods ■ Subcontractors ■ Heating ■ Paper use



# Conclusion

The CO<sub>2</sub> emissions in 2021 were even more unusual than in 2020:

Year	kg CO <sub>2</sub> per FTE	kg CO <sub>2</sub> per m <sup>2</sup>	kg CO <sub>2</sub> per 100 euro revenue	total kg CO <sub>2</sub>
2018	1.930	96,6	2,2	56.340
2019	2.438	122,9	2,4	71.269
2020	1.037	76,9	1,2	44.577
2021	327	19,6	0,3	18.690

The following factors make it difficult to compare the emissions with previous years:

1. Covid-19 measures: working from home, hardly any 'live' meetings, little business travel, no flights
2. Revenue in 2020 had a huge peak with relatively little personnel
3. Personnel numbers peaked with relatively little revenue
4. We bought the new office in December 2020. During most of 2021 the new space was being renovated, and sometime people worked in F19, sometimes not, depending on the situation



# Going forward...

Honestly, the very first year that we will have a “regular” year will be 2023. The new space, including the new climate system will be fully operational.

That means that the first possible “baseline-measurement” can be done in 2024 over the year 2023. And than new goals can be set related to that baseline.

Some points to think about:

- Since 2016, we’ve had ZERO advantages in the tenders
- Certification for the CO<sub>2</sub> performance ladder costs time, money and is an administrative burden
- Our operational reduction potential in scope 1 and 2 is very very small
- We have our new Structure Embodied Carbon Calculator tool for our projects
- Awareness of CO<sub>2</sub> reduction urgency among us is already very high without the certificate

In other words....

# Question

**Does VenhoevenCS really need a  
CO<sub>2</sub> performance ladder  
certification?**

# Outcome of discussion

1. The IPCC report is out and again it is clear there is a lot of urgency: it does not feel right to step out now
2. It will be inevitable that some sort of accountability in terms of CO<sub>2</sub> will enter the tender criteria
3. Walking the walk (i.e. looking at your own operations) is a reason for people to join our team
4. We can use the certificate to convince / stimulate colleagues to look at their operations and footprint
5. The certificate is a way to not become complacent
6. We could do more PR wise

## Actions

1. Finalise the visualisation of our goals and results
2. PR moment for 'launching' the semi-annual results – perhaps better place on website
3. Talk to BNA about stimulating architectural offices to look at their footprint
4. Improve / simplify administration and calculations of CO<sub>2</sub> footprint
5. Final decision about continuation in Q3
6. Meeting in Q4 about new reduction and engagement goals
7. Look at alternative certificates like Prestatieladder Circulair

**Thank you for your participation!**

**VenhoevenCS**  
**architecture+urbanism**