Planetary Facts

HERA IndustryX.O Centre

Heavy Engineering Research Association

24/09/2025

Executive Summary

Background

Measuring environmental performance of building materials and buildings is typically done via life-cycle assessments (LCAs), which quantify the impacts of a product or building such as emissions, water consumption, waste, and pollution. However, LCA results are complex. It is difficult to use results to inform the design of buildings or materials, or to compare the performance between products or buildings, as there is no way to rate the relative importance of the different impacts (e.g. carbon footprint versus water or waste footprints).

Planetary Accounting addresses these challenges by assessing the 10 globally critical environmental footprints and putting results into context of the Planetary Boundaries - scientific limits for a healthy planet. Planetary Accounting shows the relative performance of different impacts, supporting informed design, facilitating comparisons between products and buildings, and enabling transparent communication of overall performance.

Planetary Facts of the HERA IndustryX.O Centre

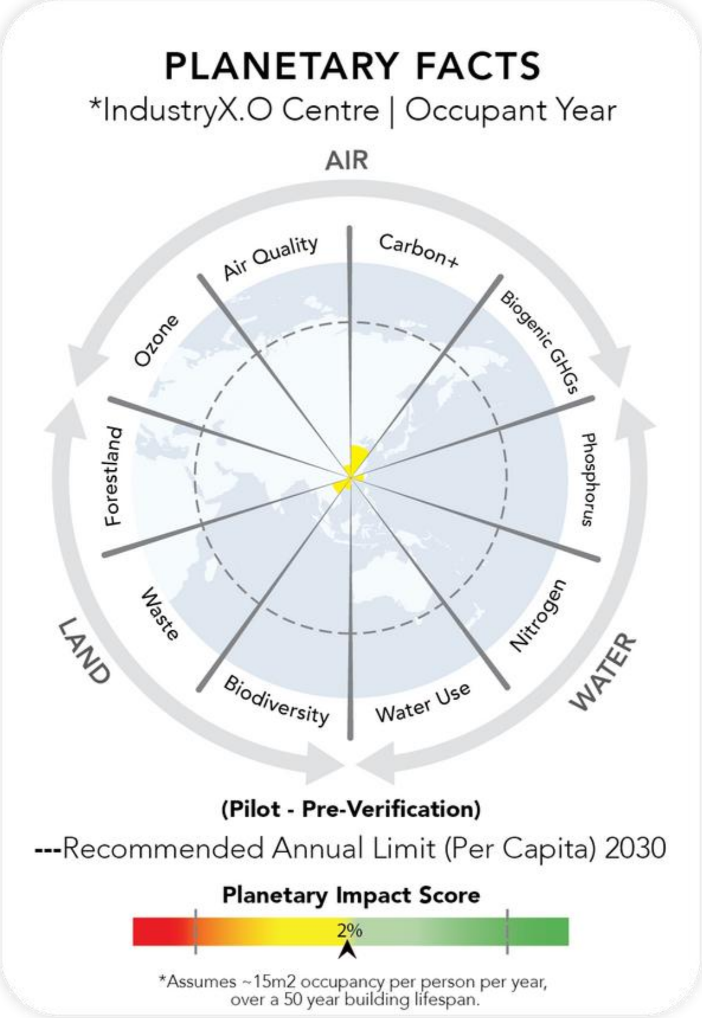
The Heavy Engineering Research Association (HERA) commissioned the Planetary Accounting Network (PAN) to undertake the first Planetary Accounting assessment for a building - HERA's new innovation lab: a 379m^2 warehouse called the IndustryX.O Centre. The project is aspiring for environmental excellence, demonstrated through a 6 Green Star Design & As Built certification.

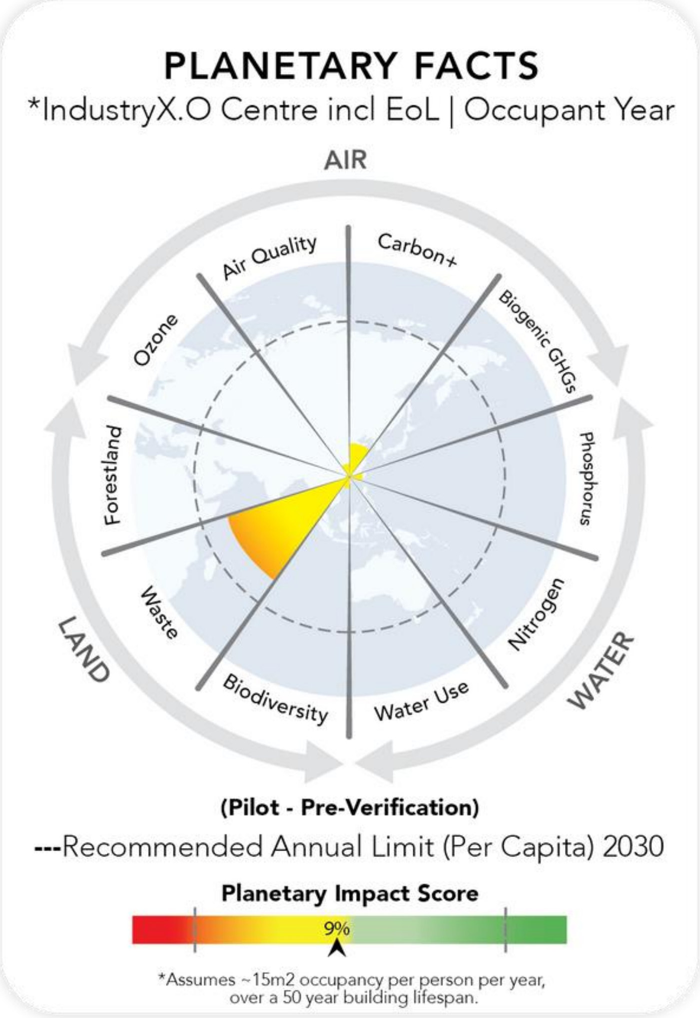
In keeping with industry standards, the assessment included upfront building impacts, including the extraction of raw materials, through manufacturing and transportation of products, and construction of the building, and impacts associated with the demolition and disposal of waste materials at the end of the building's lifecycle.

Results

Results are shown per occupant year against a recommended per capita annual limit for 2030, derived from the Planetary Boundaries*. Carbon+ is the most significant impact associated with products and construction. However, when end-of-life (EOL) is considered, waste becomes the most significant, followed by carbon+.

The Planetary Impact Score (PIS) aggregates results into an average footprint against the per capita limit to provide a single basis of comparison. The PIS of products and construction is 2%, compared to 9% when EOL is included, i.e., end-of-life contributes the most significant impacts over the buildings' life.





**Assumes ~15m^2 occupancy per person per year, over a 50 year building lifespan*

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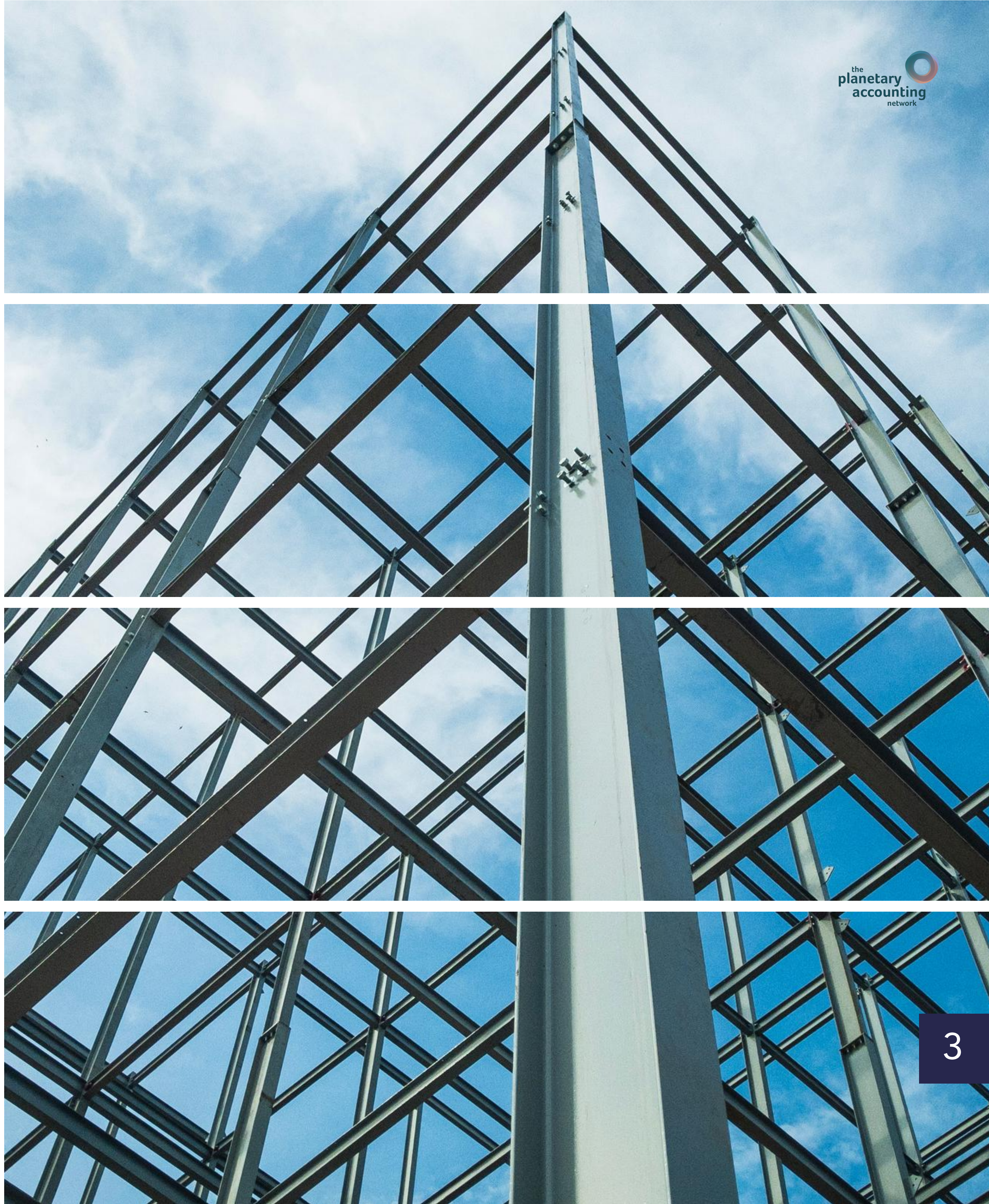


Introduction

The global buildings and construction industry has a significant environmental footprint; in 2022 around 37% of all global CO_2 emissions were due building operations and material production, alone. The industry accounts for a significant proportion of all material use worldwide, and construction and demolition waste accounts for over a third of all solid waste generated.

The Challenge

Common practice for measuring the environmental performance of a construction product or a building is to carry out a life-cycle assessment (LCA). An LCA is a process where materials, energy inputs and outputs for the product or building are identified and analysed to quantify various environmental impacts, such as waste, changes to land or land-use, emissions to air e.g., greenhouse gas emissions, and effects on air and water quality. For products, LCAs can be used to generate an Environmental Product Declaration, an independently verified report on the LCA results following a specific set of assessment criteria for the given product category.

The challenge is that LCA and EPD results are complex and difficult to interpret. There is no straightforward way to make informed decisions regarding trade-offs between different environmental issues. For example, should you reduce your carbon footprint at the cost of water usage, or waste? The same limitation makes comparison of products difficult. Designers are left wondering whether to choose products with low carbon, low water, or low waste, with no clear perspective of the relative importance of each impact.

Project Overview

Planetary Accounting is a scientifically peer reviewed framework that solves this challenge by presenting results in context of recommended environmental limits for a healthy planet called the Planetary Boundaries. This context enables people to make informed decisions about managing environmental tradeoffs and supports communication of environmental performance. Planetary Accounting has been used in New Zealand and internationally to assess the performance of businesses, products, and services.

The Heavy Engineering Research Association (HERA) commissioned the Planetary Accounting Network (PAN) to undertake the first Planetary Accounting assessment for a building - HERA's new innovation lab: the IndustryX.O Centre.

The new IndustryX.O Centre is a $379m^2$ warehouse with versatile spaces for innovation, laboratory testing, office work, and collaboration. The project is aspiring for environmental excellence, demonstrated through a 6 Green Star Design & As Built certification.

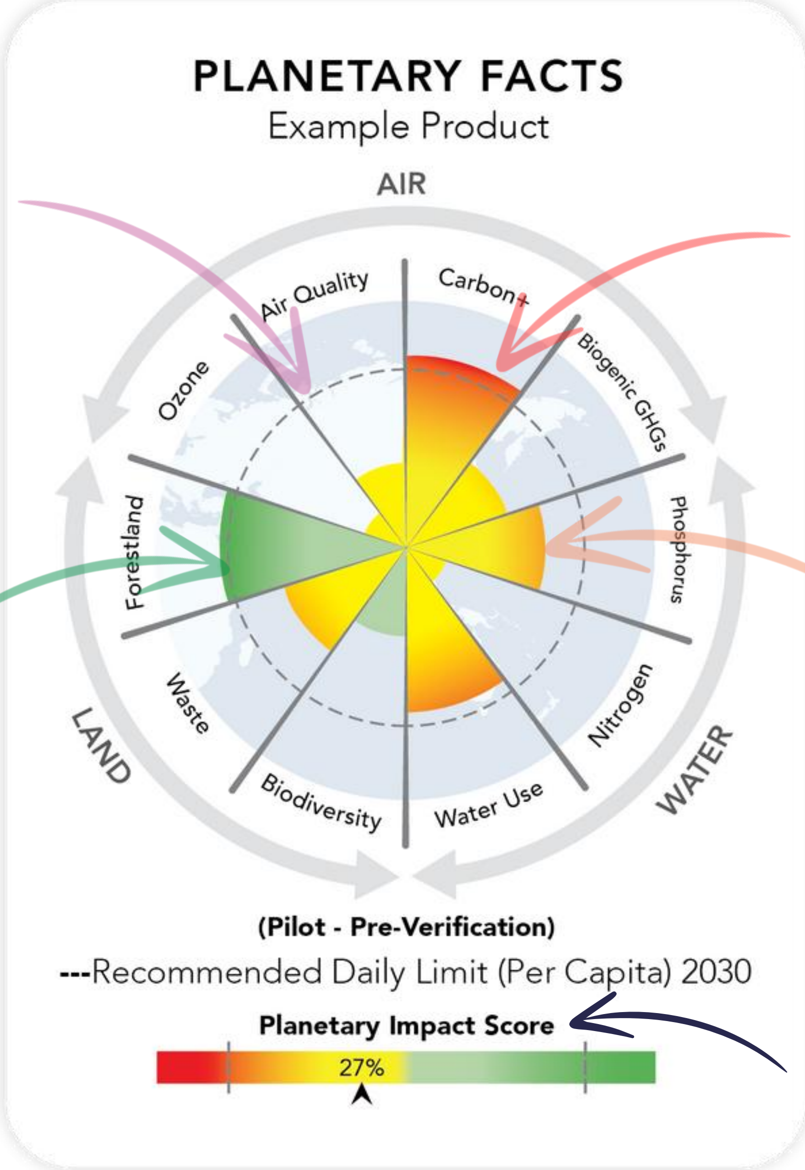
This report presents a summary of the Planetary Facts assessment of HERA's IndustryX.O Centre, including results, key findings, and recommendations for using the insights from this study to inform wider decision making for the building sector.

Planetary Facts

Inspired by nutritional facts that disclose critical health indicators e.g., calories, fat, and protein in context of a *Recommended Daily Intake*, Planetary Facts disclose critical environmental footprints in context of a *Recommended Daily Limit* - derived from global environmental limits called the Planetary Boundaries. The Planetary Boundaries are the scientific foundation that international standards and regulations are using to look beyond climate change and consider broader impacts on nature.

The "Recommended Limit" is shown by the dotted line.

Positive impact on the environment is shown in green, the bigger the green the better!



Impacts exceeding the recommended limit are shown in red

Impacts within a recommended limit are shown in yellow

The 'Planetary Impact Score' is the average impact.

Planetary Facts comprise 10 globally critical environmental footprints across different environmental domains, hau (air), whenua (land), and wai (water); with life (ora) considered within every footprint and associated limit:

Planetary Impact	Description
Air quality	Emissions or generation of aerosols / small particles or precursor gases (such as Sulphur dioxide)
Biogenic GHGs	Non-carbon dioxide greenhouse gas emissions from living organisms
Biodiversity loss	Species loss from land-use, land-use change, and ecotoxicity
Carbon+	Emissions & uptake of carbon dioxide, greenhouse gases from fossil sources and refrigerants.
Forestland	Area of deforestation (or reforestation)
Nitrogen	Nitrogen applied to land or runoff to waterways
Ozone	Emissions of ozone depleting substances (e.g. CFCs)
Phosphorus	Phosphorus applied to land or runoff to waterways
Waste	Imperishable & unrecycled waste
Water	Water consumption (direct and indirect) & contamination

The scale of each footprint shows the footprints as a proportion of the Recommended Limit. The "Planetary Impact Score" is the average footprint across all domains, providing an aggregated environmental performance score to facilitate comparisons.

Planetary Facts reflect impacts across the full life of a product until purchase - including mining of materials, manufacture, transport, and packaging.

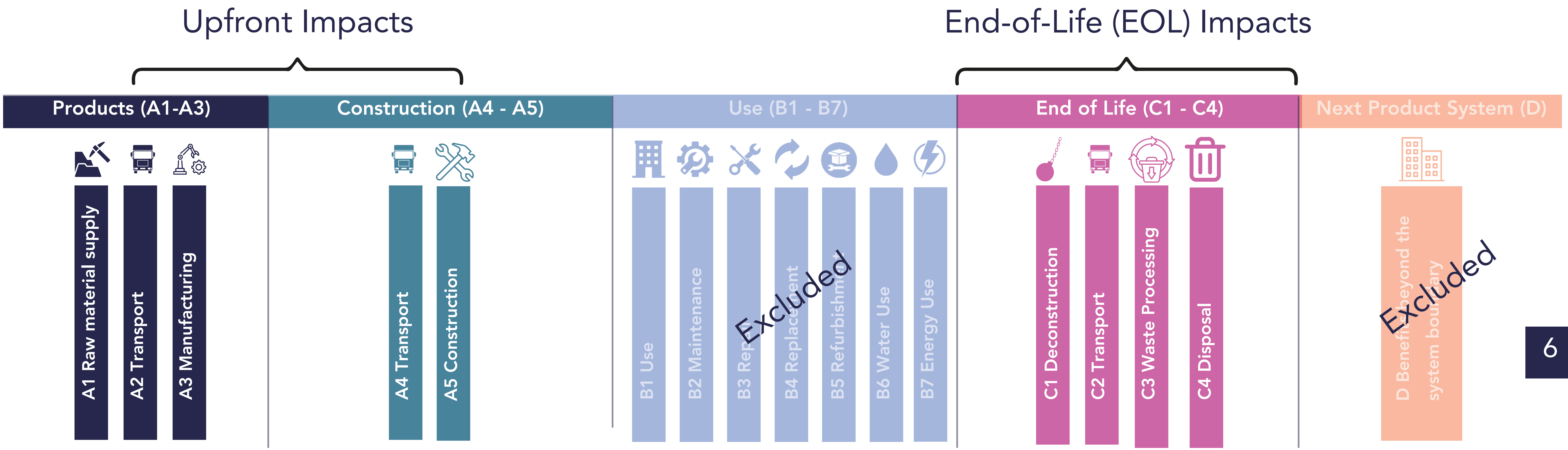
HERA IndustryX.O Centre - Scope and Boundary

LCAs of buildings categorise impacts into 5 categories:

- Products (A1-A3);
- Construction (A4, A5);
- Use (B1-B7);
- End-of-Life Stage (C1-C4); and
- Next Product System (D).

Each category includes sub-categories, as shown in the digram below:

In keeping with Greenstar NZGBC Embodied Carbon Methodology (V2.0), the assessment of the HERA Innovation Centre includes Products, Construction, and End of Life, as highlighted below. Products and Construction impacts can be combined to understand the upfront impacts of the building, in contrast to End-of-Life (EOL) Impacts. Impacts associated with Use and Next Product System have not been assessed.



HERA IndustryX.O Centre - Planetary Facts

Results

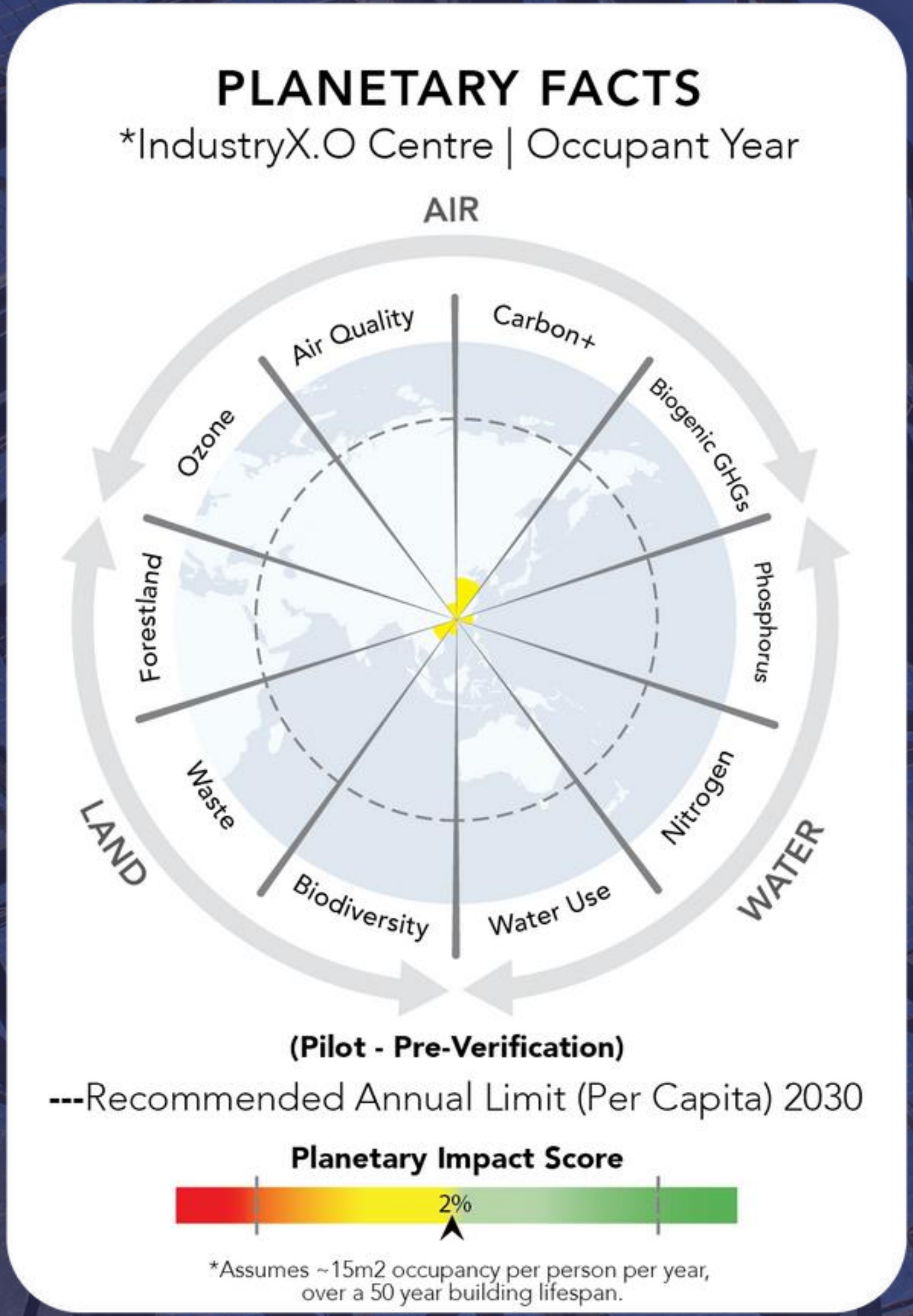
The Planetary Facts for HERA's IndustryX.O Centre are shown here. Results are shown per occupant year*, against recommended annual limit for 2030.

The label on the left shows the upfront impacts of products and construction. The one on the right shows upfront AND end-of-life (EOL) impacts.

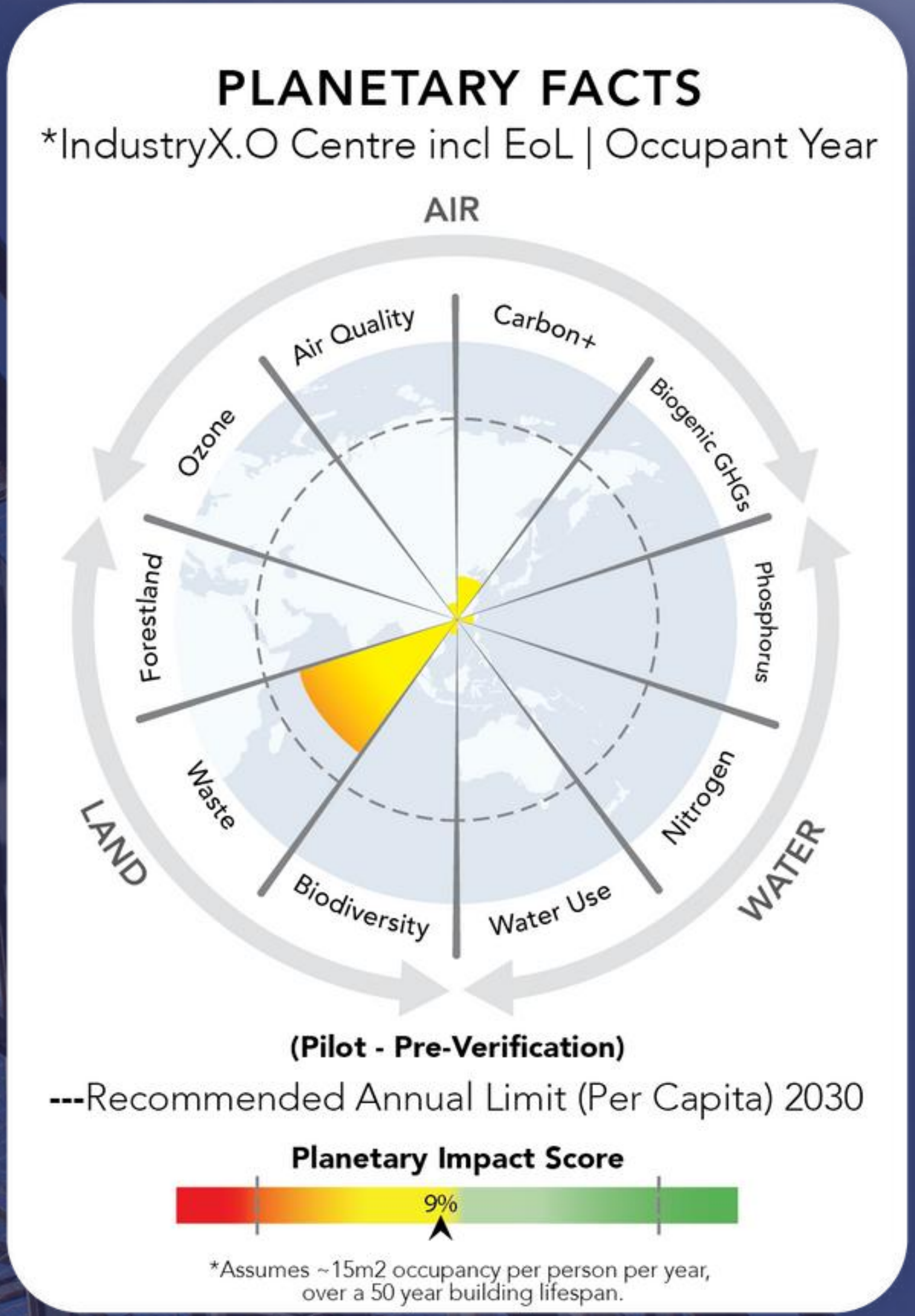
Results highlight that the most material upfront impact is carbon+, followed by waste, then phosphorus. The Planetary Impact Score of upfront impacts is 2% (i.e., the building impact per occupant year is 2% on average of a global per capita environmental budget in 2030).

In contrast, when EOL impacts are included, waste becomes the most material impact followed by carbon+ then phosphorus. The Planetary Impact Score increases to 9%, i.e. EOL contributes >3 times the impacts of products and construction.

Upfront impacts only



Upfront + EoL impacts



**Assumes ~15m^2 occupancy per person per year, over a 50 year building lifespan*

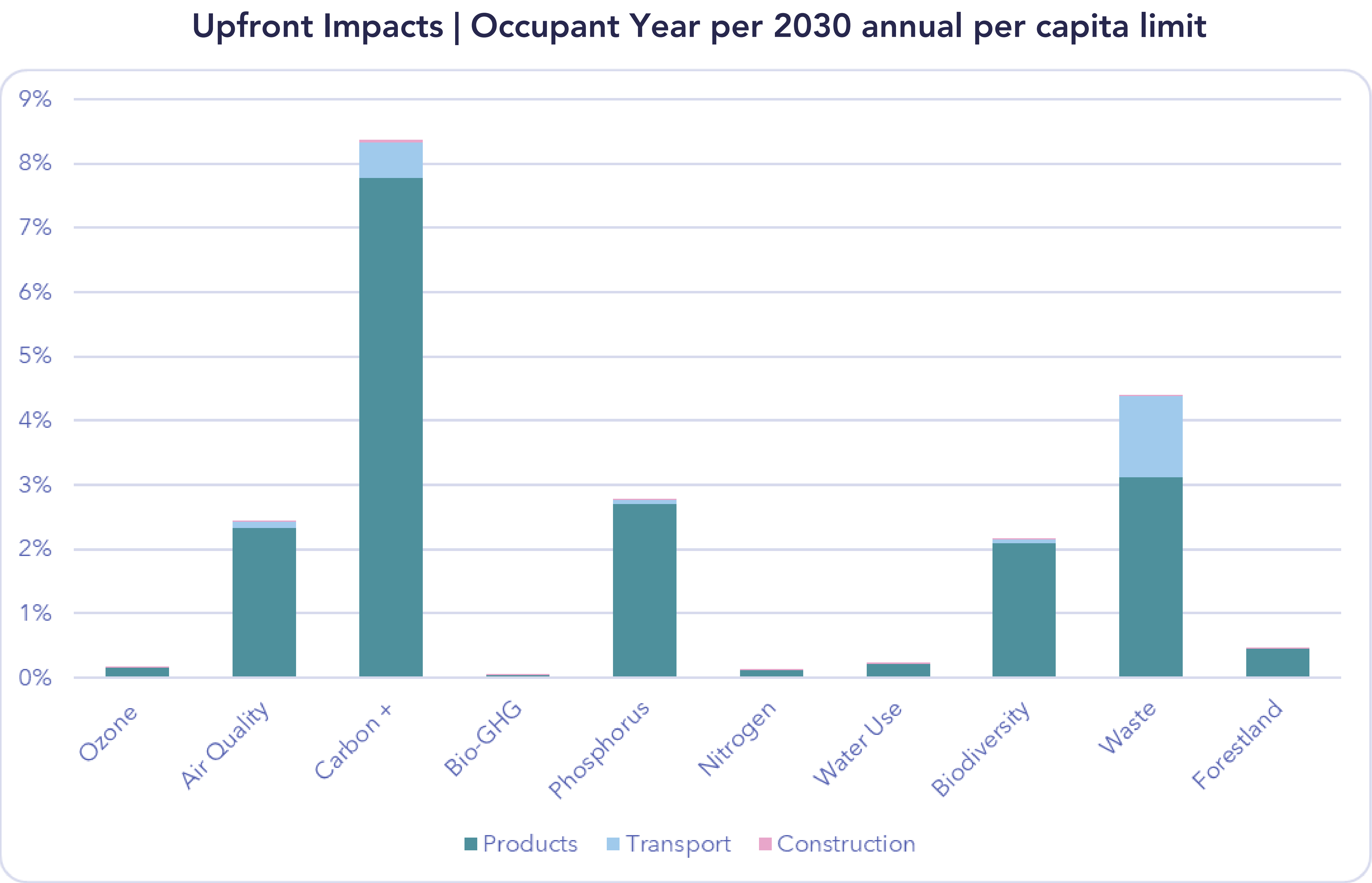
‘Upfront’ Impacts

The graph below shows the upfront impacts of the building, including impacts of material production, transportation of materials to the construction site, and activities during construction, such as fossil fuels used in machinery, waste generation, and electricity usage. The results are shown per occupant year (~15m^2 occupancy per person per year, over a 50 year building lifespan), against recommended annual per capita limit for 2030.

The results show that overall, carbon+ is the biggest impact, followed by waste, phosphorus, and air quality. The carbon+ footprint is 623kgCO2e/m^2. Per occupant year this is ~8.3% of a 2030 annual per capita budget. Key contributors to this footprint were concrete, steel, and exterior cladding. Transport contributed ~2% of the upfront carbon+ footprint.

The waste footprint is 115kg/m^2. Per occupant year this represents almost 5% of a 2030 per capita waste budget. Of the building components, concrete works were the most significant contributor to this footprint at 2%, followed by the retaining walls at 0.7%.

The results highlight that material production is the biggest contributor to upfront environmental impacts, of the building whilst transport of the materials and impacts of construction are relatively minor. Further details on the contribution of construction and transport and discussed on pages 9 and 10.

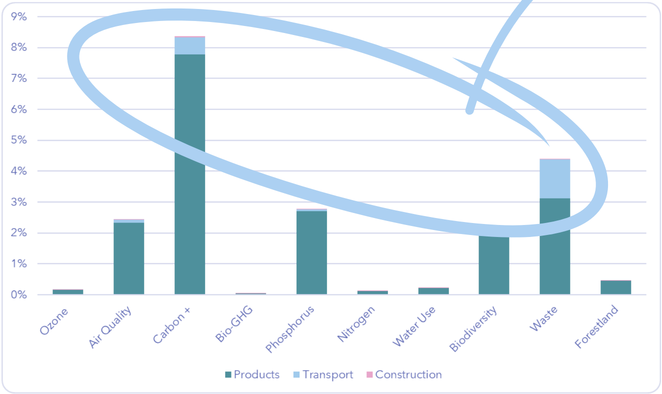


Impacts of Transport

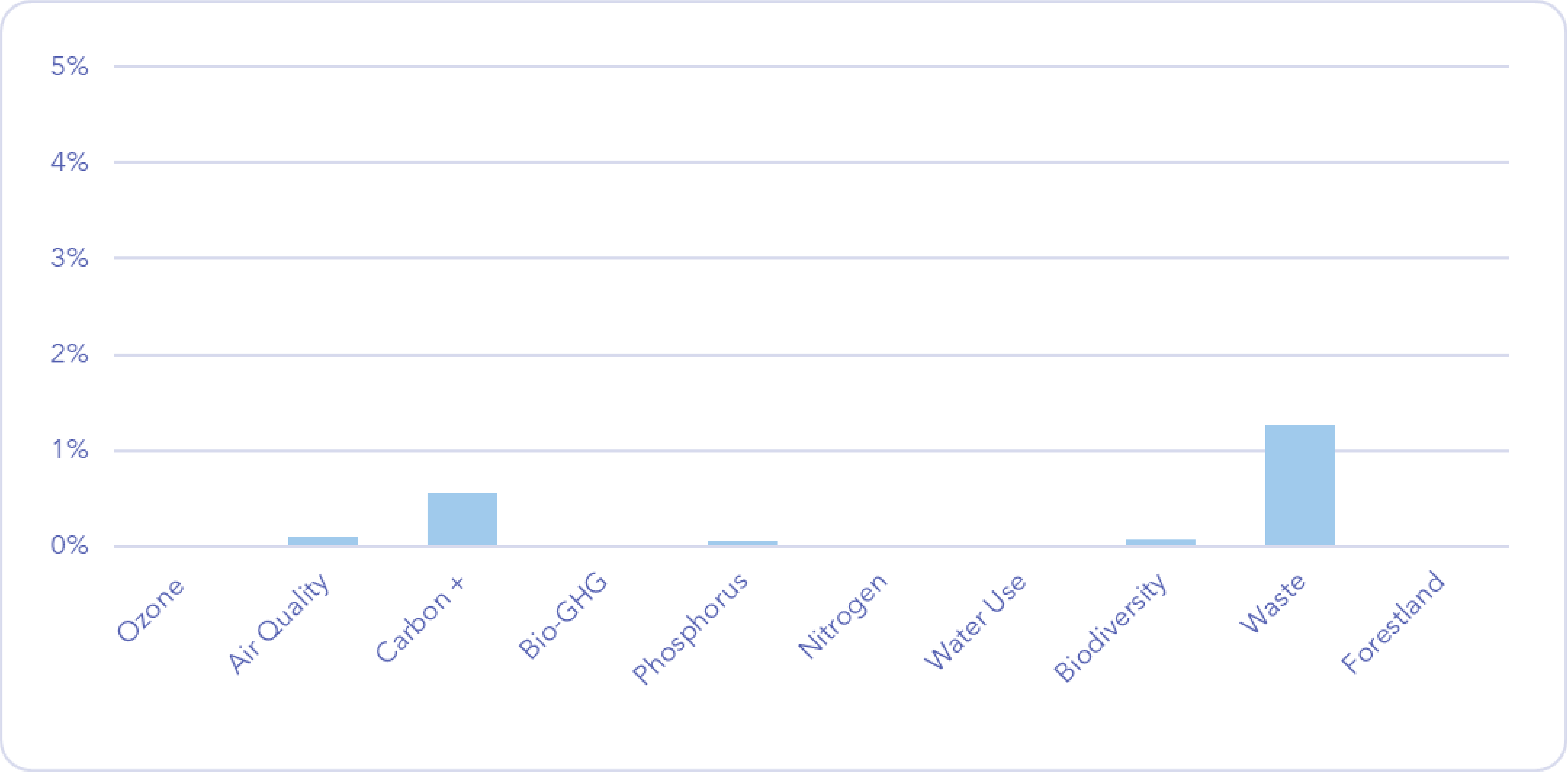
The graph below shows the impacts related to transportation of materials to the construction site only, per occupant year against recommended annual per capita limits in year 2030 - directly scaled from the Planetary Boundaries. These results indicate that waste is the most significant impact at the transport stage. The waste footprint is ~32kg/m^2. This is due to upstream impacts related to the construction and maintenance of roading and shipping infrastructure. Per occupant year, this represents ~1.3% of a 2030 per capita waste budget. This is approximately 1/5 of the overall upfront impact for waste (almost 5%).

The carbon+ footprint is the next highest, at ~0.5% of a per capita budget in 2030. This is caused by direct emissions from fossil fuel use, for example in sea and road freight.

Building components 'Retaining Walls' and 'Carpentry' were the two largest contributors to this footprint, due to the distance travelled from overseas markets for key materials used (i.e. Plywood, Timber Poles) and mass required to be transported via road freight. This was followed by Concrete Works and Drainage Fill due to the relatively large volumes - and subsequently mass to be freighted - required for the building.



Transport Impacts | Occupant Year per 2030 annual per capita limit

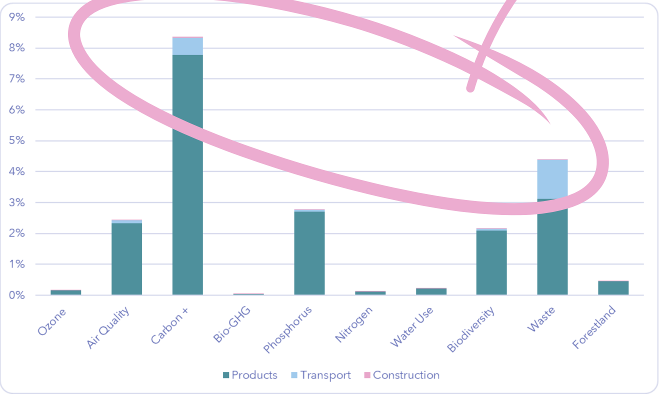


Impacts of Construction

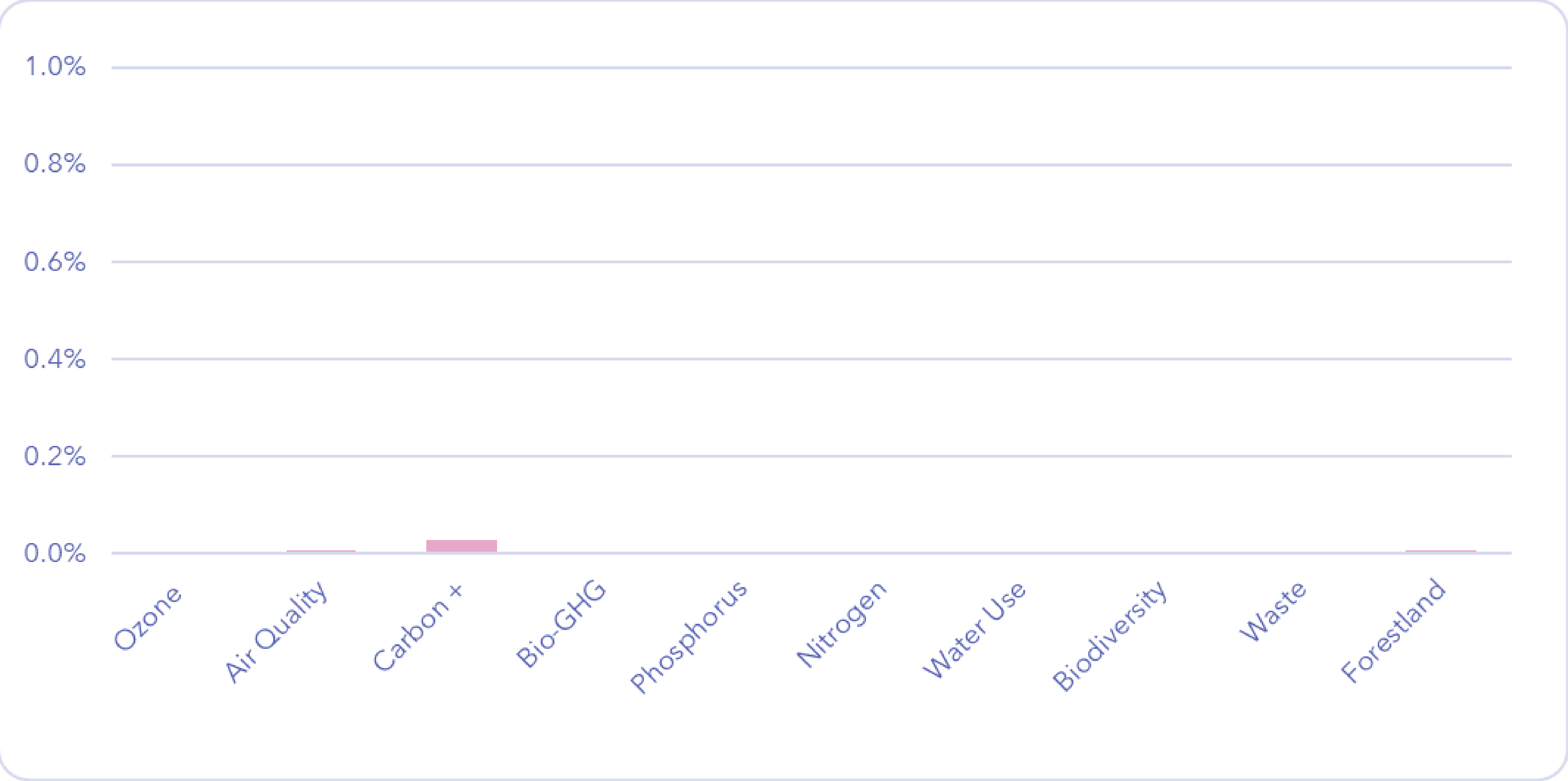
For the PA assessment, the energy used in construction is assumed to be comprised of burning fossil fuels in construction machinery (at a rate of 10MJ / m^2 GFA), and the use of medium voltage electricity from the NZ grid (10kWh / m^2 GFA). Rates per m^2 GFA have been selected so that the combined carbon+ factor is 25kg CO2-eq / m^2 GFA, so as to match the suggested factor provided by NZGBC Embodied Carbon Methodology - v2.0.

The graph shows the impacts per occupant year, against recommended annual per capita limits in year 2030. When compared to the overall upfront impacts, the contribution from activities during construction are very small, as is illustrated in the graphs below.

Carbon+ has the largest impact relative to the against annual per capita budget in year 2030. However, this is only <0.1% of the budget, compared to ~8% for the production of materials. This highlights the importance of identifying and focusing on the hotspots - in this case material production and manufacturing - in order to reduce impacts.



Construction Impacts | Occupant Year per 2030 annual per capita limit



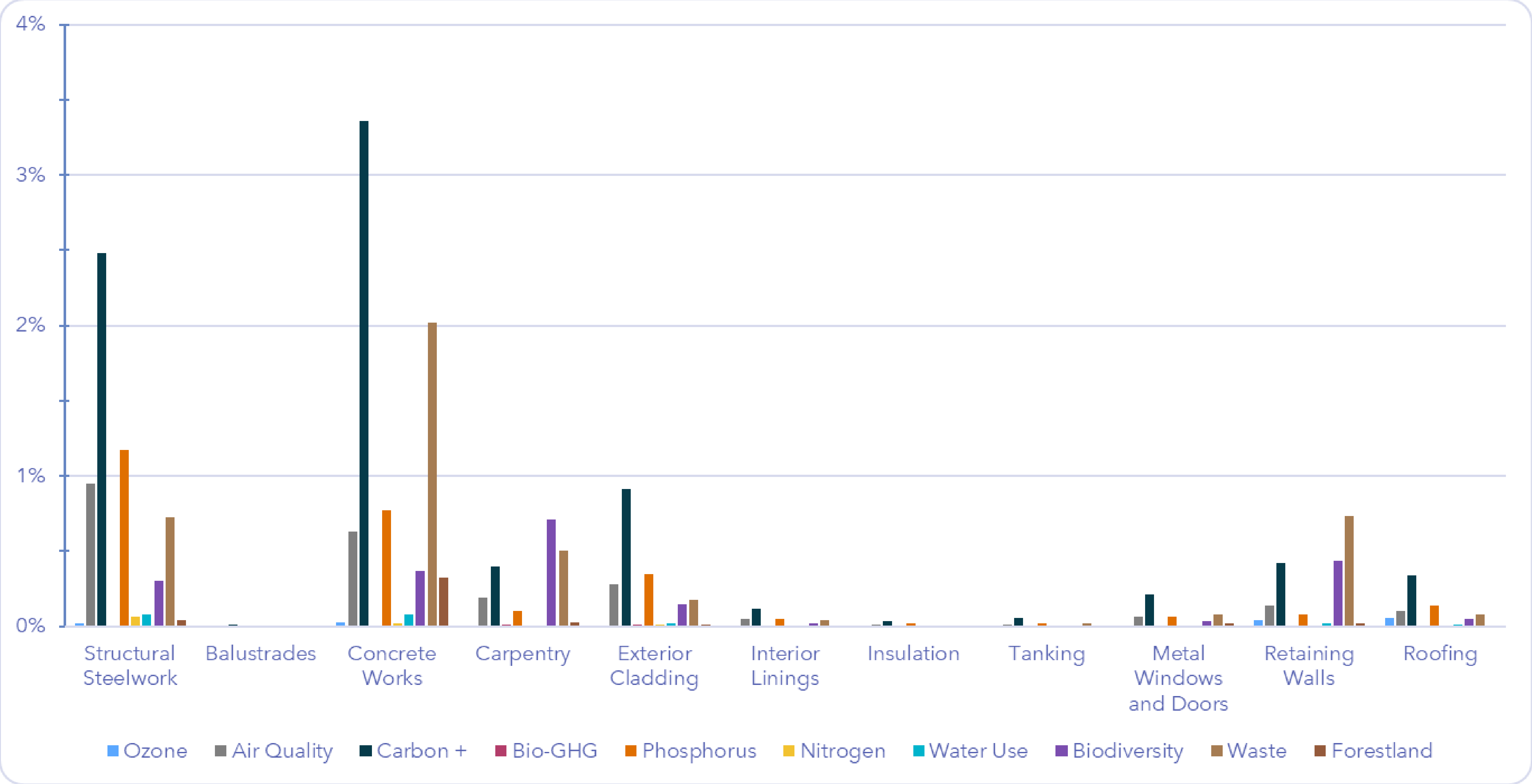
‘Upfront’ Impacts by Component

The graph below shows how each component contributes to the overall upfront impacts of the IndustryX.O Centre. For each component the impacts capture material production and manufacturing, and transportation of that component to the construction site. The generation and disposal of waste during construction is also included. Impacts are shown per occupant year (~15m^2 occupancy per person per year, over a 50 year building lifespan), against recommended annual per capita limit for 2030.

Concrete Works have the largest contribution to the carbon+ and waste footprints, at ~3.4% and ~2% respectively. This is because the production of cement (the material which is mixed with aggregate and water to make concrete) from heating limestone directly generates carbon dioxide (CO_2) emissions. The waste footprint is associated with upstream impacts, such as mining aggregates, or limestone.

The Structural Steel has the second largest construction to the carbon+ footprint, at ~2.5% and the highest phosphorus footprint at ~1.2% . This is because steel requires high heat, usually from burning coal (which creates phosphorus runoff in the coal extraction process) to melt the iron ore and produce steel. This process also release CO_2 emissions directly. The Carpentry and Retaining Walls have the largest biodiversity impacts, due to land-use required for production forestry.

Component Impacts | Occupant Year per 2030 annual per capita limit



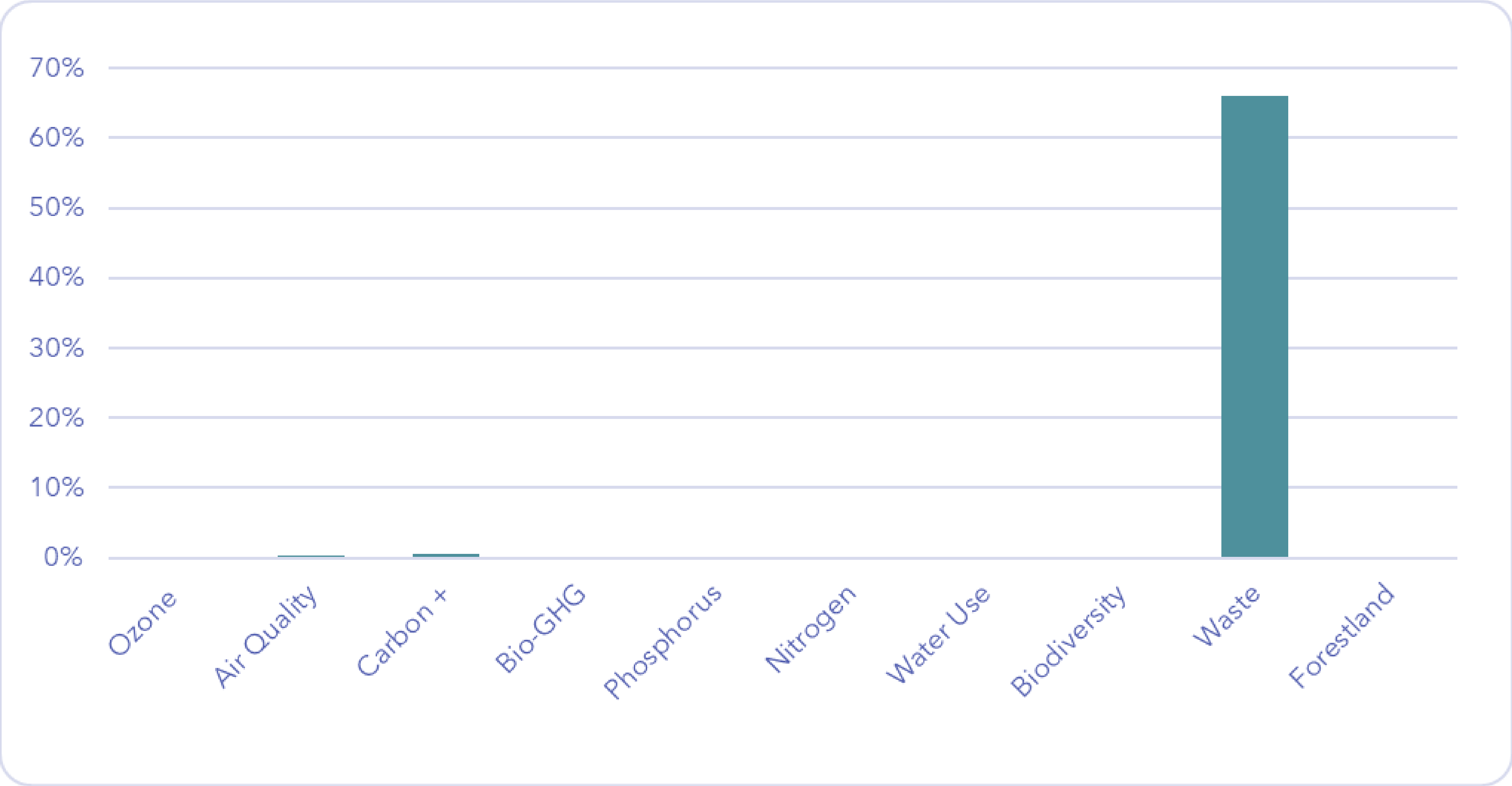
‘End-of-Life’ Impacts

Buildings are designed to have a relatively long useful life, usually for 50 to 100 years. Once they reach the end of their service life, building’s are deconstructed or demolished. This process creates significant amounts of waste, often heavy, bulky materials such as concrete, bricks, or rubble. At a global scale, more than two billion tonnes of construction and demolition waste is generated every year. In NZ, this figure is approximately 5.2 million tonnes generated each year (making up ~70% of all waste disposed of in landfills) - highlighting the importance of considering the end-of-life impacts of a building, including demolition and waste, during it’s design.

In LCA, the end-of-life stage of a building evaluates the environmental impacts associated with a building's demolition, deconstruction, and the subsequent management of its waste materials. However, when designing a building the ultimate fate of the materials is not 100% ensured. Therefore, LCAs make assumptions regarding building demolition, the methods of disposal (landfill, incineration, or recycling) for materials, whether any materials will be reused, and the availability of future technology development and potential demands for recovered materials.

The graph shows the impacts at end-of-life of the IndustryX.O Centre, per occupant year. It highlights the significant impact of waste generated at the demolition stage assuming current standard practice - where most materials are expected to go to landfill, rather than being recycled or re-used.

End-of Life Impacts | Occupant Year per 2030 annual per capita limit



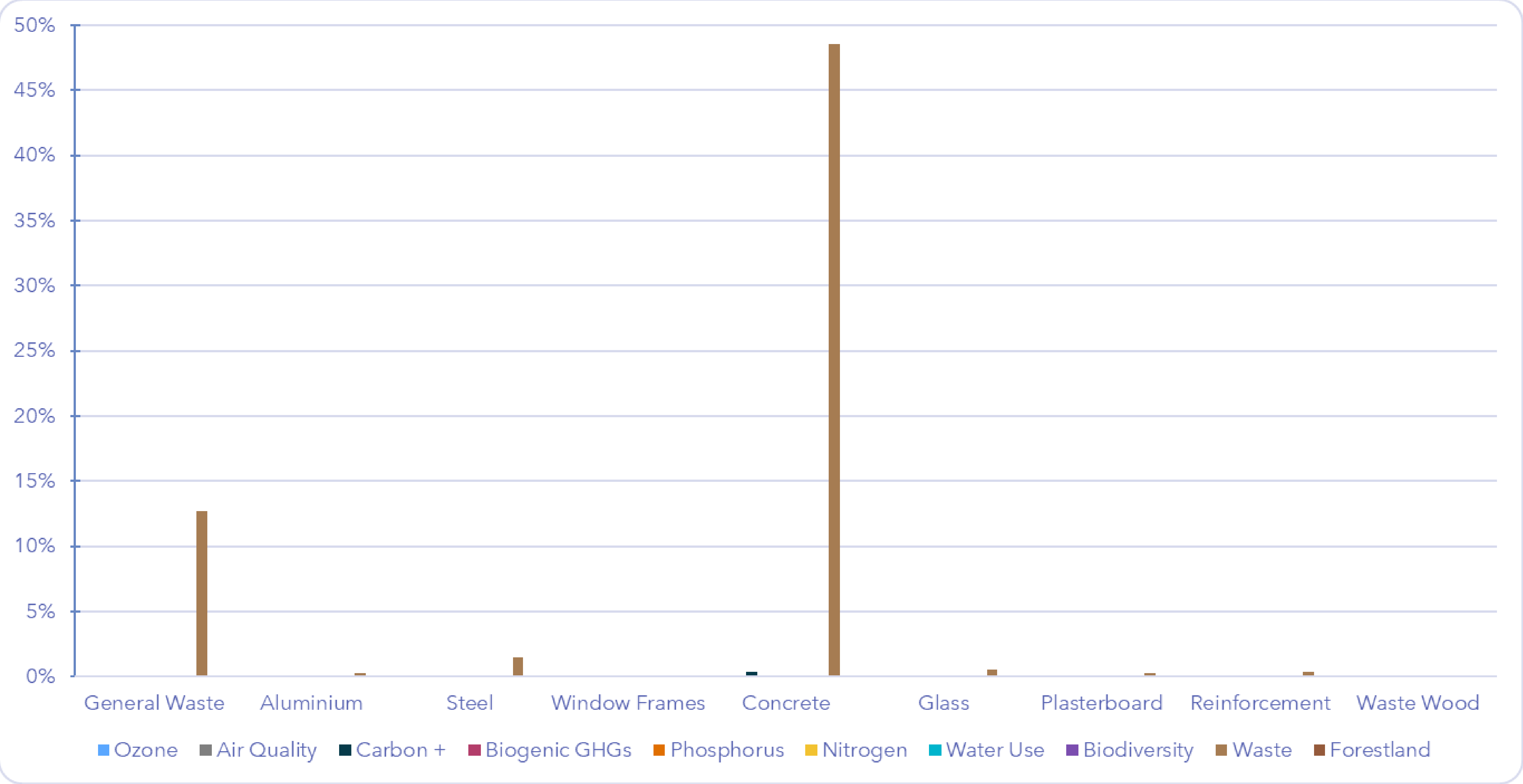
‘End-of-Life’ Impacts by Material

A breakdown of end of life demolition and waste impacts by material is shown below. Results reflect the current ‘standard practice’ (as per BRANZ NZ Building End-of-Life guidance), where most materials are expected to go to landfill.

For example, only 20% of concrete is assumed to be recycled into aggregate, whilst the remaining 80% is assumed to be landfilled. This results in a waste footprint of ~1270kg/m^2 due to the large amount (mass) of concrete used in the building. Per occupant year, this represents almost 50% of a 2030 annual per capita waste budget. In contrast, 85% of steel is assumed to be recycled, leading to a relatively lower footprint, ~40kg/m^2. This represents approximately 1.5% of an annual per capita budget in 2030, per occupant year.

‘General Waste’ is the second highest impact, at ~13% of an annual per capita budget in 2030. This is because general waste includes any mixed or unsorted waste, such as rubble, mixed soil and fill, insulation, linings, etc, which therefore, cannot be recycled, so are then disposed of in landfill.

End-of Life Impacts Per Material | Occupant Year per 2030 annual per capita limit



Opportunities to Reduce 'End-of-Life' Impacts

It is clear from the results that the end-of-life stage of a building has a significant impact on the overall environmental footprint of a building. The impacts reflect 'current standard practice', however standard practice would likely improve over time resulting in an increased proportion of waste materials that are either recycled or re-used.

The graph shows the waste footprint, per occupant year against the recommended 2030 annual per capita budget for three key waste materials: general waste, concrete, and steel. Results are shown for two scenarios 'current standard practice' and 'projected standard practice in 50 years', based on BRANZ Building End of Life Waste Datasheet.

Current standard practice assumes:

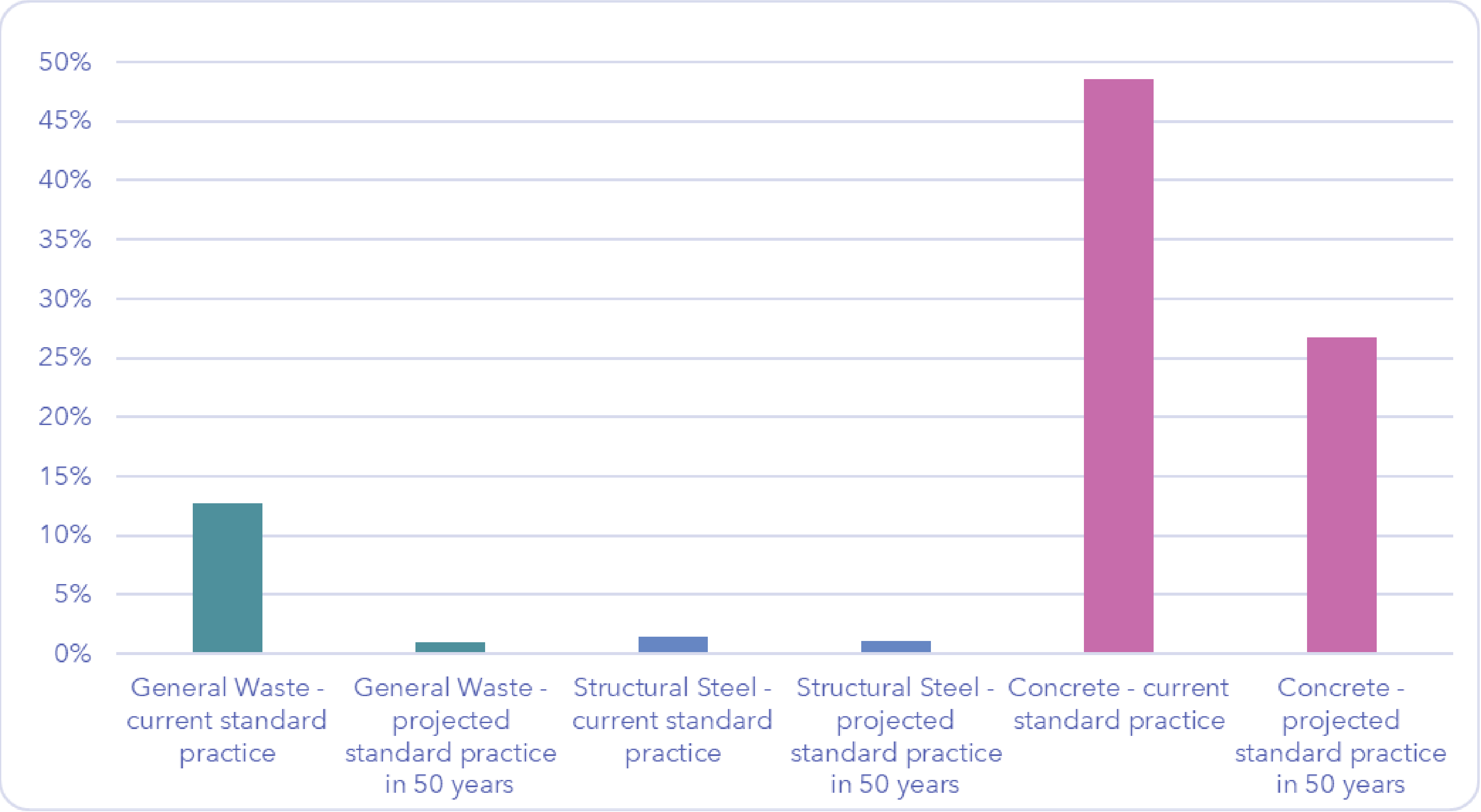
- General waste, all soil and fill are sent to landfill
- Structural steel, 85% is recycled and the remaining is landfilled
- Concrete, 80% is sent to landfill, and only 20% is recycled

Projected standard practice in 50 years assumes:

- General waste, all soil and fill is separated and recycled
- Structural steel, 90% is recycled and the remaining is re-used
- Concrete, 100% is recycled

The biggest opportunity to reduce the overall waste footprint is related to concrete. If all the concrete was to be recycled, this would reduce the waste footprint per occupant year from ~50%, to ~27% of an annual per capita budget in 2030. Similarly, separating soil and fill (such as retaining wall backfill), from general waste for recycling, could reduce the footprint from ~13%, to ~1% of an annual per capita budget in 2030. Increasing the recycled and re-used proportion of steel would reduce this footprint from ~1.5%, to ~1%. This is because a relatively high proportion of steel is already recycled, either in NZ, or offshore.

End-of Life Impacts Per Material for 'current standard practice' vs 'projected standard practice in 50 years' | Occupant Year per 2030 annual per capita limit



Key Insights and Opportunities

As the first Planetary Accounting assessment for a building, this project provides a springboard for advancing the measurement and communication of the environmental performance for the built environment. The results provide opportunities to the following groups:

Industry

Whilst these results are specific to HERA's IndustryX.O Centre, the relative impacts of different building stages are likely indicative of impact profiles of many buildings. If every building and construction project used Planetary Accounting during design this would enable industry to compare and contrast not just the impacts of different products, but also different structural systems, or different projects, to understand what does a sustainable building look like in 2030, 2040, 2050 and beyond - and use these insights to inform design.

These results highlight the significant impact that the end-of-life stage and associated C&D waste has on the overall environmental impact of the building. Decisions made during the design of a building can have a major influence on the type and amount of waste ultimately created. To minimise waste, designers should plan for end use and deconstruction; whether the design allows for disassembly and re-use, and consider specifying materials that can be recovered and either recycled or re-used.

The information provided from the assessment can also open up conversations with suppliers and sub-contractors to support collaborative efforts towards green building design and construction.

Accreditation Providers

Currently, most sustainability assessments for the built environment require a comparison between the project's impacts and a reference scenario - one that assumes sustainability initiatives are not undertaken.

Planetary Accounting enables a shift away from comparing to 'what could have been', to assess sustainability performance against 'where we need to be'. Using Planetary Accounting to put impacts, beyond carbon and climate change, into context of the Planetary Boundaries, this would enable accreditation providers and assessors to make meaningful comparisons between buildings and to understand what does 'good' look like, both now, and in the future, creating a catalyst to drive innovation and sustainable design.

You - the reader

Regardless of your role within the sector—whether as a materials supplier, contractor, builder, or otherwise—you have the ability to drive meaningful change. By advocating for better disclosure of environmental performance, in context - either for whole projects, or individual products, you can help provide industry with the data and insights needed to make informed, responsible decisions.

Appendix

HERA IndustryX.O Centre - Planetary Facts Label

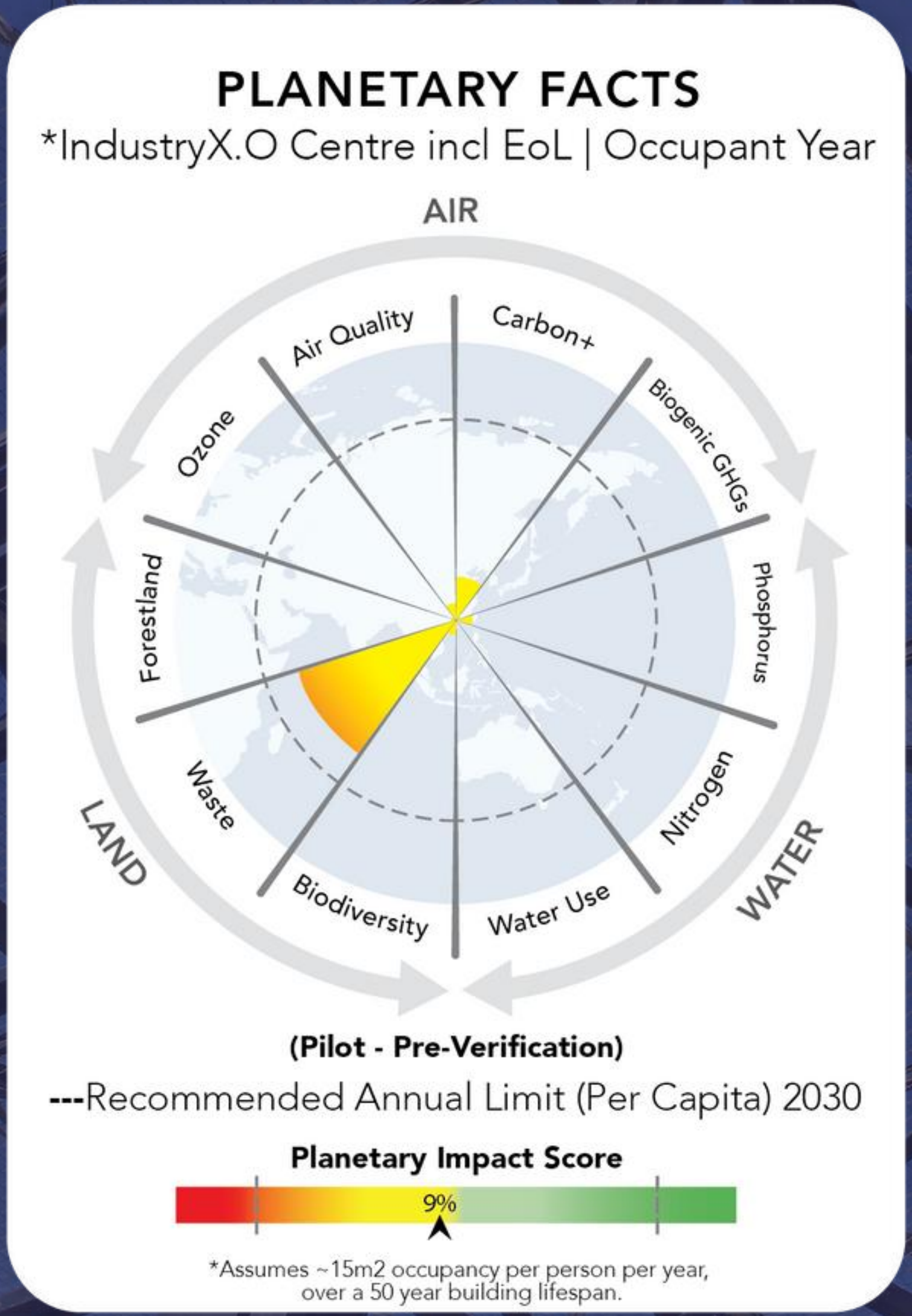
Key Assumptions

The Planetary Facts of the IndustryX.O Centre were calculated using data provided by HERA.

Key assumptions are outlined below:

- Gross Floor Area of the building is 379m2
- The average occupancy area is assumed to be 15m2 per person.
- The building design life is assumed to be 50 years.
- Amounts (m2, kg, or m3) of building materials are based on Bill of Materials provided by HERA. As specific environmental impact data for these materials was not provided, impacts have been modelled using EcoInvent LCA datasets.
- Transportation distances are sourced from BRANZ Construction Transport datasheet for Auckland.
- Energy used in construction per m2 GFA is assumed to be comprised of the use of construction machinery (10MJ / m2 GFA) , and medium voltage electricity from the NZ grid (10kWh / m2 GFA).
- End-of-Life assumptions for materials (i.e., waste rates and fates) are based on NZGBC Embodied Carbon Methodology –v2.0 and BRANZ Building End of Life Waste Datasheet.

Refer to the Appendices for a full list of assumptions.



Planetary Impact	Unit	Results for 1m2	Occupant Year % of Annual Per Capita 2030 Limit
Ozone	kg CFC-11-Eq	1.02E-05	0.18%
Air Quality	kg PM2.5-Eq	0.62	2.6%
Carbon +	kg CO2-Eq	656	8.8%
Bio-GHG	kg CO2-Eq	1.2	0.04%
Phosphorus	kg P-Eq	0.16	2.8%
Nitrogen	kg N-Eq	0.069	0.12%
Water Use	m3	8.0	0.23%
Biodiversity	species.yr	5.19E-06	2.2%
Waste	kg waste	1817	69%
Forestland	m2	0.02	0.53%

**Assumes ~15m2 occupancy per person per year, over a 50 year building lifespan*

Appendix - Assessment Methodology

Planetary Accounting Assessment Methodology

The Planetary Accounting assessment of HERA's Industry X.O Centre has involved the following activities:

- Mapping the building stages, to identify activities across material production and manufacturing, including transport and construction, deconstruction and demolition and end of life.
- Identifying appropriate LCA datasets that align with materials in the Bill of Materials (BOM), material transportation, construction, demolition, and disposal of materials at end-of-life
  - Where necessary, material quantities from the BOM were converted to match the functional unit of the corresponding LCA dataset unit
- Calculating the environmental impact of each building stage across 10 environmental footprints, including carbon+ (fossil-based greenhouse gas emissions), biogenic GHGs (biological greenhouse gas emissions), waste, water use, biodiversity loss, forestland, ozone, air quality, nitrogen, and phosphorus.
- Establishing science-aligned context to put the impacts into the perspective of the Planetary Boundaries.

Appendix - Assumptions - A1-A3

Category	Assumption
CONCRETE WORKS	
Concrete	30MPa concrete. Unit weight of 2500 kg/m3
Comfloor	Assumed 1.7kg/m2
Spoon drain	Assumed 0.8m wide, and 0.15m deep
TANKING	
Tanking systems	Assumed 2L per m2 per coat (2 coats), 1L = 1kg
DPC to slabs	Assumed 2L per m2, 1L = 1kg
INSULATION	
Pink Batts	Assumed weight: 1.7kg per m2
Acoustic internal walls	Assumed weight: 1.7kg per m2
Ridge Foam Infill	Ecofilm - Assumed weight: 32kg/m3
EXTERIOR CLADDING SYSTEMS	
Metalcraft Kahu Vertical Cladding	Assumed weight: 5.5kg/m2
ACM panel cladding	Assumed weight: 5.5kg/m2
RAB	Assumed weight: 13kg/m2
Corten panels	Assumed a 5mm thick panel. Assumed weight: 7850 kg/m3
INTERIOR LININGS	
Rondo ceiling system/timber battens	Assumed 600mm spacing for ceiling. Assumed weight: 3.43kg for 3.6m length
13mm GIB	Assumed 13mm GIB Standard: 8.5kg/m2
10mm GIB	Assumed 10mm GIB Standard: 6.5kg/m2
BALUSTRADES	
Surreal semi-frameless glass balustrades by Unex	Assumed weight: 40kg/m2

Appendix - Assumptions - A1-A3 cont...

Category	Assumption
ROOFING	
Metalcraft ThermoSpan EPS	Assumed 12.4kg/m2 total, with 2kg for polysyrene inner
Nuraply Everguard TPO membrane	Assumed weight: 1.25kg/m2
Metalcraft Colorsteel Maxx box gutter	Assumed weight: 4.5kg per m length
METAL WINDOWS AND DOORS	
Glazing	Assumed glass weight: 31.25kg/m2
2.5mm Corten panels to exterior, 3mm powder coated aluminium to internal, 75mm poly insulation size 4810 x 5690mm	Assumed weight: 7850kg/m3
RETAINING WALLS	
Geo textile fabric	Assumed weight: 500g/m2
Megaflow drain	Assumed weight: 0.2kg/ m length
Selected drainage fill	Assumed unit weight: 1500kg/m3
20 series block retaining walls	Assumed weight: 12.5kg/m2 based on Firth masonry

Appendix - Assumptions - A4

Category	Assumption
Sea freight from material supplier to construction site (Auckland)	Distances per material taken from LCANZ NZ WBWLF Module 4 'Transport to Construction Site Datasheet'
Road freight from material supplier to construction site (Auckland)	Distances per material taken from LCANZ NZ WBWLF Module 4 'Transport to Construction Site Datasheet'

Appendix - Assumptions - A5

Category	Assumption
Impacts of construction	Energy used in construction per m2 GFA is assumed to be comprised of the use of construction machinery (10MJ / m2 GFA) , and medium voltage electricity from the NZ grid (10kWh / m2 GFA). Rates per m2 GFA result in a carbon+ factor of 25kg CO2-eq / m2 GFA to match the factor from NZGBC Embodied Carbon Methodology –v2.0.

Appendix - Assumptions - EOL

Category	Assumption
Construction waste per material	NZGBC Embodied Carbon Methodology –v2.0: Appendix F: "Default Assumptions for Construction Waste" - Table 20, and BRANZ Building End of Life Waste Datasheet.
Concrete Waste	Impacts based on Ecoinvent dataset: Landfilled portion "market for waste concrete" Recycled portion "treatment of waste reinforced concrete, sorting plant"
Steel Waste	Impacts based on Ecoinvent dataset: Recycled portion "market for waste reinforcement steel" Landfilled portion "market for scrap steel" Reused steel "treatment of waste reinforcing steel, recycling"
Aluminium Waste	Impacts based on Ecoinvent dataset: "market for scrap aluminium"
Glass Waste	Impacts based on Ecoinvent dataset: "market for glass waste sheet"
GIB Waste	Impacts based on Ecoinvent dataset: "market for waste gypsum plasterboard"
Reinforced Steel Waste	Impacts based on Ecoinvent dataset: "market for waste reinforcement steel"
Window Frame Waste	Impacts based on Ecoinvent dataset: "market for used window frame, wood-metal"
Timber Waste	Impacts based on Ecoinvent dataset: "market for waste wood post consumer"
Recycled Drainage Fill i.e., gravel	Impacts based on Ecoinvent dataset: "market for waste concrete gravel"
All other waste (i.e. where specific waste dataset was unavailable)	Impacts based on Ecoinvent dataset: "market for inert waste, for final disposal"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