

# POPULOUS<sup>®</sup>

APAC SUSTAINABILITY ACTION PLAN



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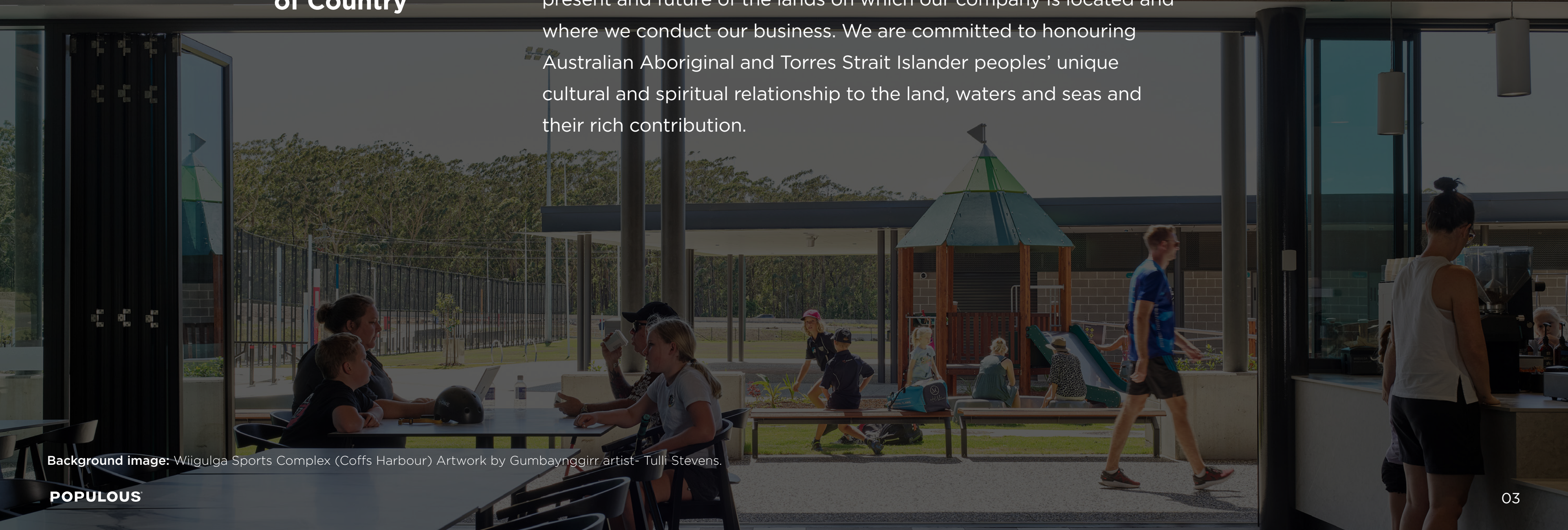
**Steve Carlstrom**

Special thanks to APAC Populous colleagues for their thoughts and insights that led to the development of APAC Sustainability Action Plan.



## Acknowledgement of Country

Populous acknowledges the Traditional Custodians and Elders past, present and future of the lands on which our company is located and where we conduct our business. We are committed to honouring Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationship to the land, waters and seas and their rich contribution.



Background image: Wiigulga Sports Complex (Coffs Harbour) Artwork by Gumbaynggirr artist- Tulli Stevens.

## Recognition of Asia-Pacific Communities

With more than 35 nationalities represented across Populous' Asia Pacific teams, we remain committed to recognising and honouring the many traditions and cultures we have throughout our region and beyond.

Drawing people together

Jode Logo ko Aapas me

匯聚群眾

使人们欢聚在一起

人々を結びつける

Menyatukan Masyarakat Bersama

Leute zusammenbringen

사람들을 함께 모음

Menyatukan Masyarakat

ໂຍງໂຍ ຜູ້ຄົນ ເຂົ້າດ້າຍກັນ

Tipunin at Pagbuklurin ang Mamayan

**SBLIŽUJEME LIDI**

**Объединяем людей**



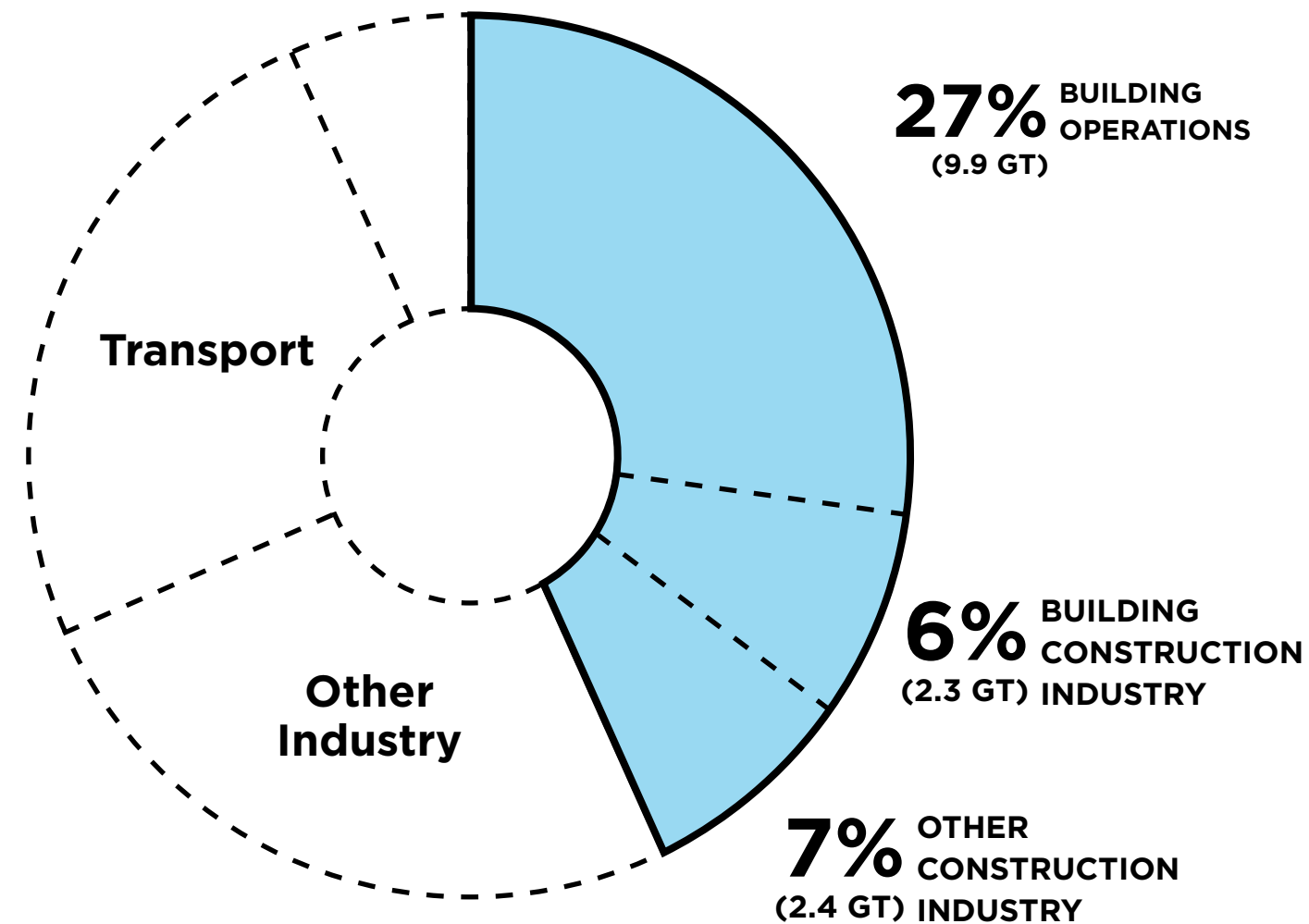


# 1. Introduction

## **Stadium Australia**

Sydney, Australia  
Completion Date: 2000

Solar Shading Design  
Natural Ventilation  
Rainwater Harvesting with 4 x 500kL tanks  
Led to the formation of Green Building Council of Australia  
(Populous 2021)



**GLOBAL CO2 EMISSIONS BY SECTOR**  
(Architecture 2030, 2006)

**Populous has the unique privilege of reimagining the world through communal and civic architecture towards the betterment of individuals, communities, and the planet.**

In 2016, UNFCCC adopted the Paris Agreement in response to global warming and climate change which aims to limit the global temperature increase to well below 2°C, enhance climate resiliency and adaptation, and reduce greenhouse gas emissions with net zero carbon emission goals (UNFCCC 2023). As seen in the figure on the left, building and construction account for nearly 40% of all carbon emissions in the ongoing climate crisis (International Energy Agency and the United Nations & Environment Programme, 2019). Thus, Populous recognises the significant opportunity to utilise innovative thinking paired with sustainability ambitions to shape the world through the creation of meaningful places to ensure that future generations can prosper.

Populous' APAC Sustainability Action Plan sets out the firm's goals towards social, environmental, and economic prosperity for people and the planet. This document will undergo regular reviews and the goals will be reported against every year. The document, further, complements Populous' Sustainability Design Framework (SDF), ISO14001 EMS policies, Diversity & Inclusion policies, business alignment, and community engagement. However, these specific policies are not explicitly outlined within this document.

# 2. Our Drivers

## ICC Sydney

Sydney, Australia  
Completion Date: 2016  
LEED Gold Certified

520 kW photovoltaic array that can power 100 homes  
14% reduction in total potable water requirements  
96% of steel is recycled content

20% less GHG emission compared to Building Code of Australia minimum requirements  
(ICC Sydney 2019)



# Populous' Triple-Bottom-Line Framework

Populous has been at the forefront of environmentally sustainable design solutions for public assembly venues since the formation of our practice.

Underpinning our ethos and intent is the triple-bottom-line sustainability framework:





# Social Prosperity

## Populous designs communal and civic spaces that:

- Encapsulate human joy and meaningful experience.
- Unite people across cultural, social, and economic realities to create healthy, thriving communities.
- Build and house shared memories, stories, creativity, and moments of excellence for generations to come.

### ← **Wiigulga Sports Complex, Coffs Harbour**

- Artwork by Gumbaynggirr artist, Tulli Stevens, was commissioned by the local Council and National Aboriginal Design Agency (NADA) in collaboration with Gumbaynggirr Elders.
- Community engagement with Gumbaynggirr people (Traditional Owners), Sikh community, local high school and sporting communities.
- Universal designed and multipurpose facility for different ages, genders, cultures, and abilities.
- Pursuing GBCA 4 Star Green Star rating.  
(Contact Populous to learn more)

# Environmental Prosperity

**Populous adopts three key foundational elements when creating their environments which are:**

- Climate-responsive design.
- Careful material selection that considers embodied and operational carbon emissions.
- Holistic design performance that regenerates and restores biodiversity.

**Forsyth Barr, New Zealand**

First natural turf in the world with ETFE roof.  
(Populous 2023b)





# Economic Prosperity

**Populous is committed to a just and equitable economy by:**

- Designing for flexibility in programming and spaces to support additional revenue streams and community use.
- Enabling reductions in operational costs and carbon emission savings over the life of the venue.
- Advocating for local materials, skills and talent, healthy construction processes, and circular economy initiatives.



**CommBank Stadium, Sydney**

- 700kg of soft plastics from new seat covers used in roads and plastic wheel-tops.
- 90% waste diversion from landfill.  
(Bond 2020)

# 3. Sustainability Commitments

## **Metricon Stadium**

Gold Coast, Australia  
Completion Date: 2011

Solar halo of photovoltaic cells serving 20% of Stadium needs  
High-efficiency air conditioning  
Target of 75% recycling of glass, paper, cardboard , green waste and comingled recyclables  
(Populous 2023c, ARUP 2012)



# UN Sustainable Development Goals

## Populous supports the UN Sustainable Development Goals.

Populous utilises the UN Sustainable Development Goals (SDGs) to address economic, social, and environmental challenges. The firm takes its obligation seriously to alter the architecture profession's practices toward enhancing planetary health while collaborating with our clients and the construction industry to ensure holistic triple-bottom-line outcomes.

# Australian Architect's Declare

## **Populous APAC is a signatory to the Australian Architect's Declare.**

Australian Architect's Declare (AAD) is a voluntary industry-driven declaration by architects, clients and collaborators committed to tackling the climate and biodiversity emergency.

### **As a signatory, we will:**

1. Raise awareness of the climate and biodiversity emergencies and the urgent need for action amongst our clients and supply chains.
2. Advocate for faster change in our industry towards regenerative design practices and a higher Governmental funding priority to support this.
3. Establish climate and biodiversity mitigation principles as the key measure of our industry's success: demonstrated through awards, prizes, and listings.
4. Share knowledge and research to that end on an open-source basis.
5. Evaluate all new projects against the aspiration to contribute positively to mitigating climate breakdown and encourage our clients to adopt this approach.
6. Upgrade existing buildings for extended use as a more carbon-efficient alternative to demolition and new build whenever there is a viable choice.
7. Include life cycle costing, whole-life carbon modelling and post-occupancy evaluation as part of our basic scope of work, to reduce both embodied and operational resource use.
8. Adopt more regenerative design principles in our studios, with the aim of designing architecture and urbanism that goes beyond the standard of net zero carbon in use.
9. Collaborate with engineers, contractors, and clients to further reduce construction waste.
10. Accelerate the shift to low embodied carbon materials in all our work. Minimise wasteful use of resources in architecture and urban planning, both in quantum and in detail.

# ISO 14001 Environmental Management System



**Populous Australia is a ISO 14001 certified company.**

Populous adopted the Environmental Management System to improve and enhance our overall environmental performance across the firm's key components: projects, operations and our people.

Our EMS gives us the ability to consistently provide services that:

- Meet client requirements.
- Enhance key environmental performance indicators.
- Document achievement of environmental goals.
- Fulfil compliance obligations.





# 4. Sustainability Goals

## **Margaret Court Arena**

Melbourne, Australia  
Completion Date: 2014  
LEED Gold Certified

Cool roof to tackle urban heat island  
Rainwater-flushed toilets  
Sustainably sourced timber  
Adaptive reuse  
(Hopkins 2015)

# Sustainability Goals

**The Sustainability Action Plan sets out Populous' detail of ambitious goals and reporting metrics with a timeline.**

Guided by our commitment to UN SDGs and Australian Architects Declare manifesto, Populous categorises its sustainability goals across its three business components:

- Projects
- Operations
- People

\*Populous Sustainability Design Framework: SDF



# Projects

GOALS	REPORTING METRICS	YEAR
<p><b>1 PROJECT DESIGN</b> 100% of projects to consider and design with the Populous Sustainability Design Framework (SDF) focus areas as the basis of design.</p>	<p>Utilise the ISO 14001 EMS audit process to document:</p> <ul style="list-style-type: none"> <li>• No. of projects that are 100% SDF compliant.</li> <li>• No. of projects that are 50% SDF compliant.</li> <li>• No. of projects that are 0% SDF compliant.</li> </ul>	<p><b>2025</b></p>
<p><b>2 PROJECT REVIEWS</b> 100% of projects to follow the SDF project review process.</p>	<p>No. of projects that have documented their interactions with the SDF through the Sustainable Design Review Forms and ISO 14001 EMS audit process.</p>	<p><b>2025</b></p>
<p><b>3 COMMUNITY ENGAGEMENT</b> 100% of projects to have client and community engagement.</p>	<p>No. of consultations documented through the Sustainable Design Review Forms and ISO 14001 EMS audit process. Public consultations with local communities and potential users is necessary for all architecture projects in all studios. For all other design projects, consultations is to be considered on a case-by-case. Australia-based projects will have mandatory consultations with Australian Indigenous communities.</p>	<p><b>2025</b></p>
<p><b>4 PROJECT METRICS</b> 100% of projects will measure and track the performance of carbon, water, daylight, ventilation, and material selection through the design process.</p>	<p>Capture data from projects with the support of appropriate consultants (minimum required levels in SDF): embodied carbon, operational carbon, potable water consumption, daylight levels, ventilation &amp; material selection.</p>	<p><b>2030</b></p>
<p><b>5 CLIENT AND INDUSTRY ADVOCACY</b> 100% of projects that have adhered to the SDF to be recommended for firm’s website showcase, industry awards and client, government, and construction industry advocacy.</p>	<ul style="list-style-type: none"> <li>• No. of projects meeting green building certifications and/or awards on website.</li> <li>• No. of projects submitted for awards.</li> <li>• No. of projects won awards.</li> <li>• Marketing materials: Client presentations, bids materials, proposals.</li> <li>• Stakeholder presentations.</li> </ul>	<p><b>2030</b></p>

# Operations

GOALS	REPORTING METRICS	YEAR
<p><b>6 STUDIO OPERATIONS CARBON EMISSIONS</b> All studios to achieve carbon neutral operations: 75% emission reduction before offsetting.</p>	<p>Scope 1, 2 and 3 carbon emissions of Populous' operations where Scope 3 are Scope 1 and 2 emissions for any collaborating party or hired consultant. Brisbane, Sydney, Melbourne: Climate Active Carbon Neutral Standard* All other studios: to be determined.</p>	<p><b>2030</b></p>
<p><b>7 STUDIO CONSUMABLE WASTE</b> All studios to have zero consumable waste.</p>	<p>Consumable waste which includes paper, food, plastic, general office waste and e-waste: by weight to landfill, by weight to recyclers.</p>	<p><b>2030</b></p>
<p><b>8 STUDIO WATER USE**</b> All studios to have 50% reduction in potable water use for non-potable uses.</p>	<p>Percentage litres/person/day based on billing information.</p>	<p><b>2030</b></p>
<p><b>9 STUDIO WELLBEING**</b> All Populous studios to achieve WELL certification to address health and wellbeing of Populous employees and all individuals who use the space.</p>	<p>WELL Certification for office spaces.</p>	<p><b>2030</b></p>

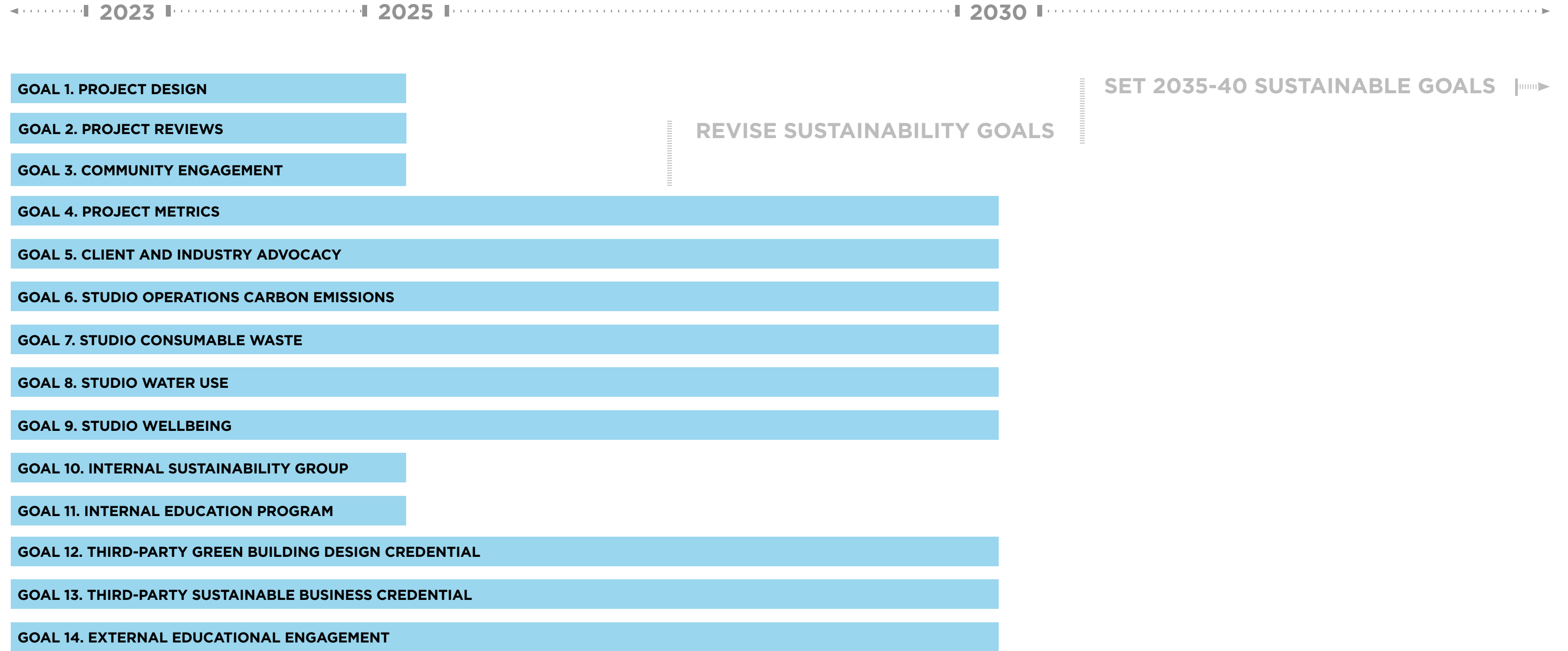
\*Climate Active Carbon Neutral Standard is being used as a mechanism to publicly report on studio emissions in Australia. It covers energy emissions, all kinds of travel, waste generation, and use of products and services.

\*\*Where Studios have limited influence on the workspaces, they will document and report on efficiencies and goals achieved through strategies and policies.

# People

GOALS	REPORTING METRICS	YEAR
<p><b>10 INTERNAL SUSTAINABILITY GROUP</b> Leverage internal sustainability working group across region to drive sustainability across projects and studio culture.</p>	<p>Governance chart indicating:</p> <ul style="list-style-type: none"> <li>• 2 ESD project leads per studio</li> <li>• 2 ESD culture leads in the region with regularly rotating co-chairs</li> </ul>	<p><b>2025</b></p>
<p><b>11 INTERNAL EDUCATION PROGRAM</b> 100% of staff to have taken Populous' in-house sustainable design program.</p>	<p>Percentage of staff's program completions</p>	<p><b>2025</b></p>
<p><b>12 THIRD-PARTY GREEN BUILDING DESIGN CREDENTIAL</b> 50% of architecture and design project delivery staff to have sustainability-related professional credential.</p>	<p>Percentage of staff with green building and design credentials</p>	<p><b>2025</b></p>
<p><b>13 THIRD-PARTY SUSTAINABLE BUSINESS CREDENTIAL</b> 50% of non-project delivery staff to have sustainability-related professional credential.</p>	<p>Percentage of staff with sustainable business credentials</p>	<p><b>2030</b></p>
<p><b>14 EXTERNAL EDUCATIONAL ENGAGEMENT</b> 2 key teaching, learning and/or research engagements that emphasise the SDF with schools and universities in each studio each year.</p>	<p>No. of school/university engagements per studio per year</p>	<p><b>2030</b></p>

# Overview



**NOTE**

The SAP will be reported against every year.

# UN SDGs and Australian Architect's Declare

Populous' Sustainability Goals are indicatively aligned here with UN SDGs and AAD's Manifesto. Please note that UN SDGs 1, 2, 5, 8 and 10 are addressed in Populous' CSR and DEIB initiatives. The next version of the SAP will address UN SDGs in detail with respect to Populous Projects, Operations and People.

POPULOUS GOALS	UN SDGs	AAD	POPULOUS GOALS	UN SDGs	AAD
1 PROJECT DESIGN	6, 7, 9, 12, 13, 14, 15	1, 2, 5, 6, 7, 8, 9, 10	8 STUDIO WATER USE	6, 12, 18	-
2 PROJECT DESIGN	7, 6, 9, 13, 14, 15	1, 2, 5, 6, 7, 8, 9, 10	9 STUDIO WELLBEING	3, 12, 13	-
3 COMMUNITY ENGAGEMENT	11, 16, 17	1, 5	10 INTERNAL SUSTAINABILITY GROUP	13, 11, 17	8, 10
4 PROJECT METRICS	3, 6, 7, 13, 14, 15, 17	7	11 INTERNAL EDUCATION PROGRAM	4, 13	4, 8, 10
5 CLIENT & INDUSTRY ADVOCACY	4, 3, 16, 17	3, 4	12 THIRD-PARTY GREEN BUILDING DESIGN CREDENTIAL	11, 13	8, 10
6 STUDIO OPERATIONS CARBON EMISSIONS	7, 13	-	13 THIRD-PARTY SUSTAINABLE BUSINESS CREDENTIAL	11, 13	8, 10
7 STUDIO CONSUMABLE WASTE	12, 13	-	14 EXTERNAL EDUCATIONAL ENGAGEMENT	4, 11	8, 10

# 5. References

## Climate Pledge Arena

Seattle, USA  
Completion Date: 2011

- No fossil fuel use for daily uses
- 200-foot/ 60-m living wall in main concourse
- 100% renewable solar power
- "Rain to rink" water harvesting system that converts rainwater to ice for the stadium
- Preservation of historic roof (44 million pounds in weight/ ~20 million kgs)  
(Populous 2023a1)



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# 6. Glossary

## Stade de la Meinau

Strasbourg, France  
Completion Date: 2025

Innovative reuse of 4,400m<sup>2</sup> of decommissioned A340 aircraft fuselage sections to create 1,000m<sup>2</sup> of photovoltaic panels to the roof of the South Stand  
Rainwater recycling facilities  
Powered by biomass renewable energy  
(Populous 2021)

# Glossary

## Climate Active

Climate Active certification is awarded to businesses and organisations that have reached a state called carbon neutrality - based on an agreed emissions boundary for a specific certification type (Climate Active, 2019).

## Embodied Carbon

The total of all direct and indirect GHG emissions occurring during the production processes of the building and construction materials. This includes all emissions associated with making the production process equipment, all other supporting business functions for bringing a product to the market, transport of materials to site, and the process of constructing the building itself (Prasad et al., 2021).

## Green Building Certifications

Green Building Certification systems offer the possibility to measure and compare the sustainable performance of buildings by applying a set of quantifiable criteria (Jensen & Birgisdottir, 2018). Examples include LEED, Green Star, BREEAM, and Living Building Challenge.

## ISO 14001 EMS

ISO 14001:2015 specifies the requirements for an environmental management system that an organisation can use to enhance its environmental performance (ISO, 2022).

## Operational Carbon

The total of all the direct (scope 1) and indirect (scope 2) GHG emission from all energy consumed (operational energy) during the use stage of the building life cycle (including regulated and unregulated/plug loads) (Prasad et al., 2021).

## Populous' Sustainability Design Framework

Populous' Sustainability Design Framework is a living internal Populous document that sets key sustainability targets, strategies and available data that can be implemented within built environment projects. The targets and strategies are set across currently seven focus areas: site and context, passive design elements, water, energy, materials, health and happiness, and equity.

## Scope of carbon emissions

Scope 1: Direct emissions from buildings

- Fossil fuel consumption in buildings (boilers, cooking equipment, etc).
- Natural and synthetic refrigerants.

Scope 2: Indirect emissions from building energy consumption

- Electricity consumption by: (i) Heating, ventilation, and air conditioning systems (ii) Refrigeration equipment (iii) Lighting and other building services (pumps, lifts, etc). (iv) Equipment and plug loads (computers, appliances, etc).
- Energy from heating and cooling services provided by utilities and district plants

## **Glossary** (contd.)

Scope 3: Indirect emissions from other sources

- Embodied carbon from materials in the building
- Emissions from: (i) water use and sewage treatment (ii) waste sent to landfill.

(Prasad et al., 2021)

### **WELL Certification**

The WELL Building Standard™ is a vehicle for buildings and organisations through a set of design strategies to deliver more thoughtful and intentional spaces that enhance human health and well-being (International WELL Building Institute, 2022).

**POPULOUS®**