

# Harold Ancart at David Zwirner

## Carbon Emissions Report

### Introduction

Today's climate crisis necessitates re-evaluating many 'business as usual' practices. For this exhibition, Harold Ancart and David Zwirner sought to calculate the carbon emissions associated with the creation, transport, and display of the pieces in this show to analyze its impact on the environment. Carbon emission equivalents (tons CO<sub>2</sub>e) are the standard unit for measuring carbon footprint. This unit quantifies the greenhouse gasses released into the atmosphere by human activity in terms of the corresponding amount of carbon dioxide. Curbing greenhouse gas emissions is essential to limiting the extent of global warming, and in the Paris Agreement of 2015 the US committed to cutting overall greenhouse gas emissions by 26-28 percent below 2005 levels by 2025. From the analysis of the exhibition's carbon emissions it is possible to

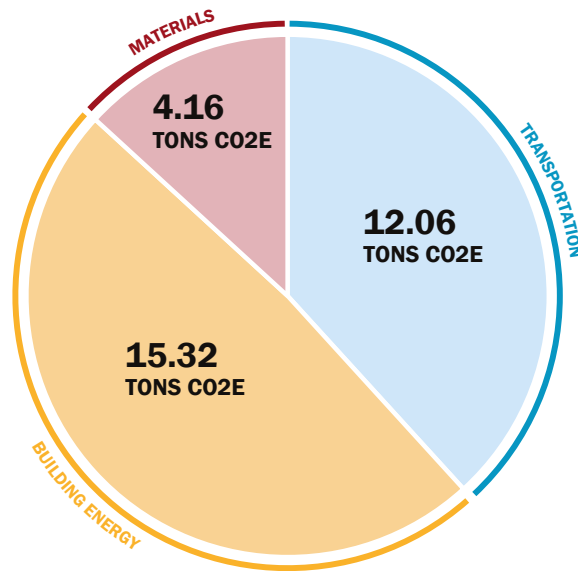
identify various ways Ancart and David Zwirner can change their practices to reduce their associated emissions in pursuit of these goals.

To perform this carbon calculation, every aspect of the artist's process was analyzed, from the painting canvas to employee commutes. The scope of this study begins at the start of production of the artwork in January 2020 and continues through the end of the exhibition at David Zwirner on October 17th 2020. This analysis includes transportation of staff or artwork, the energy used by the buildings occupied during the process, and the embodied carbon – the emissions associated with making products – of all materials that went into the production, transportation, and display of the artwork.

## TOTAL CARBON EMISSIONS

The total emissions from this exhibition are 31.54 tons of CO<sub>2</sub>e. To put this in perspective, this is equivalent to the annual emissions from 3.6 typical American homes. To offset this amount of carbon emissions, 526 urban trees would have to be planted and grown for 10 years, or 41 acres of US forest would have to be sustainably managed for one year. Another point of comparison, The Rockefeller

Center Christmas tree emits 54.0 tons of CO<sub>2</sub>e from its lights alone. The emissions from the exhibition are broken into three categories: materials, transportation, and building energy. Building energy accounts for 49% of the associated emissions of the project, with transportation second at 38%. More detailed descriptions of these categories are included on the following pages.

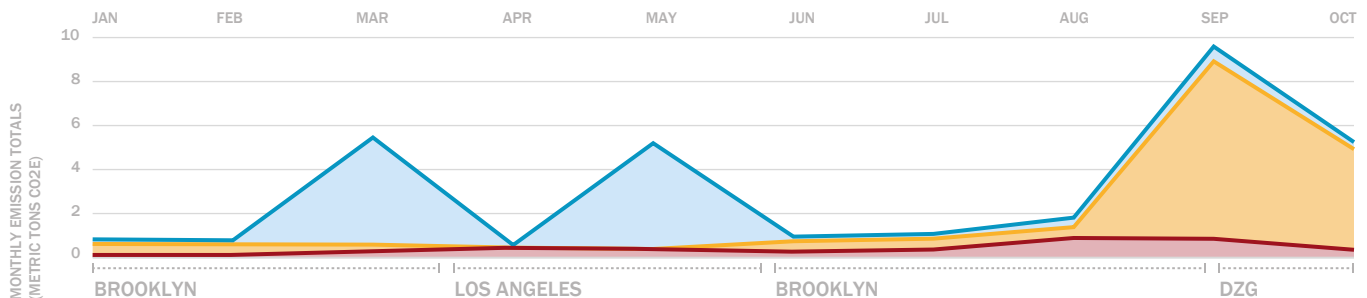


**54.0 tons CO<sub>2</sub>e**  
emitted annually  
by lighting the  
Rockefeller Center  
Christmas Tree

## MONTHLY EMISSIONS TOTALS

The graph below shows the emissions from the exhibition over the 10-month period of analysis. This exhibition was created in abnormal times, as the artist and his team had to continue to work through the COVID-19 lockdown in New York City in March and April. To maintain the ability to work, the team relocated to Los Angeles from March to May. The transportation peaks in the graph below are the emissions from two cross-country trips via airplane and truck. Additional transportation includes the artist's daily commute from Manhattan to Brooklyn and employee commutes to the David Zwirner Galleries.

The building energy category accounts for almost 50% of the total building emissions, and the peak in September is the emissions from the energy used by the David Zwirner gallery building. The artist's studio in Brooklyn and the David Zwirner warehouse are also included in the analysis. The embodied carbon from the materials used in the exhibition is relatively low. This includes the artist's materials and the materials required to pack and transport the artwork. The increase in August and September stems from the packing materials required to transport the artwork to the gallery and the materials for the show's installation.

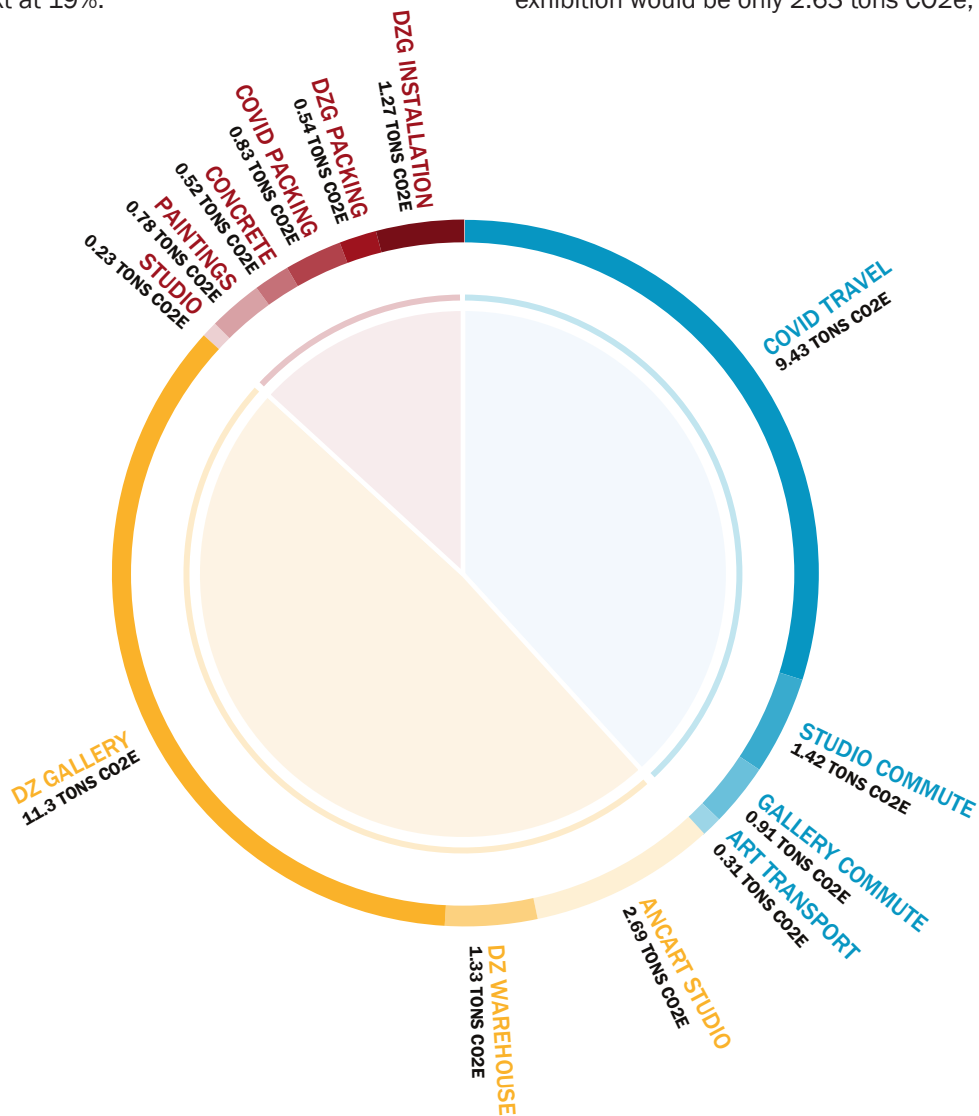


## MATERIALS

30% of material emissions in the exhibition come from the installation at David Zwirner. This includes signage, pedestals for the concrete sculptures, and a printed advertisement in Art Forum, an international magazine with a 50,000 copy print distribution. COVID-19 related materials for transporting the artwork in the two cross country trips, including silicone paper, saran wrap, and a temporary studio construction in Los Angeles, are the second largest component at 20%. The paintings, including frames, canvas, and paint, are next at 19%.

## TRANSPORTATION

As shown in the chart below, 78% of transportation emissions come from COVID-19 related travel for the artist and his team. Each cross-country flight, assuming reduced occupancy due to the pandemic, produces 2.21 tons of CO<sub>2</sub>e, and each drive in a U-Haul van with poor gas mileage releases 2.5 tons of CO<sub>2</sub>e. The second highest segment of emissions, at 12%, comes from Ancart's commute to the studio by car. Without the travel necessitated by the COVID pandemic, the transportation related emissions from the exhibition would be only 2.63 tons CO<sub>2</sub>e, a 78% reduction.

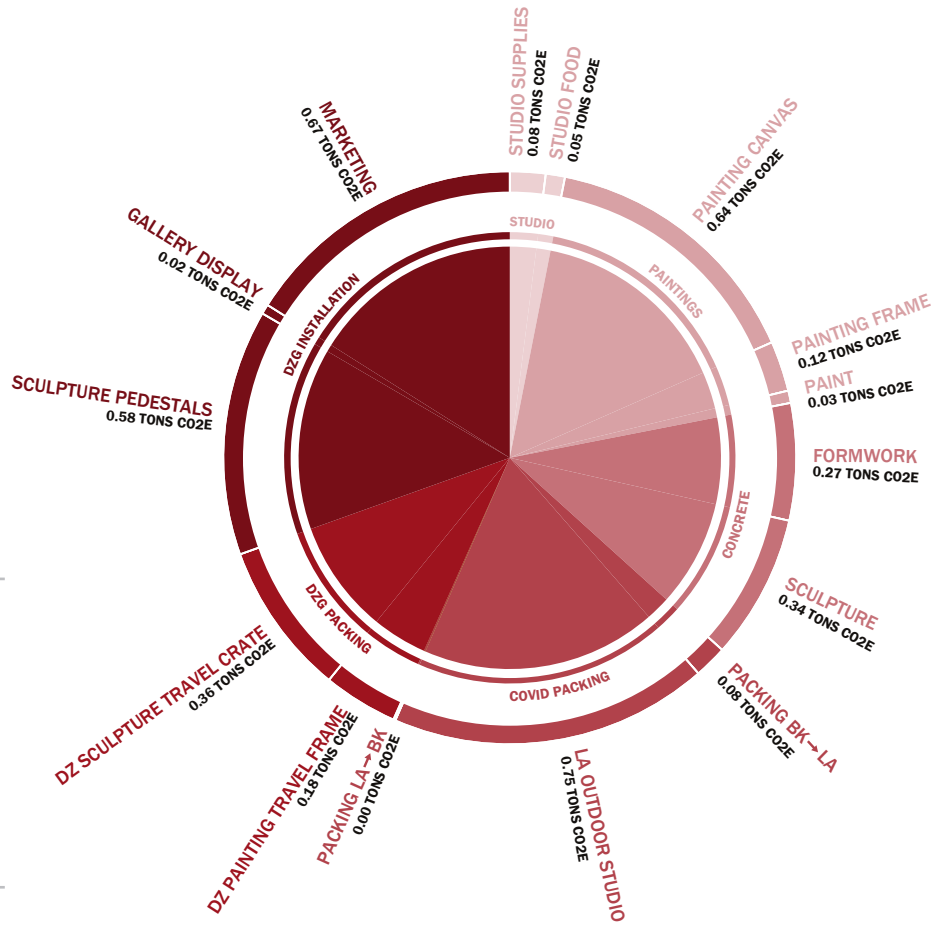


## BUILDING ENERGY

As discussed previously, the David Zwirner gallery accounts for most of the building energy related emissions, at 74%. The energy demands of the gallery space are much higher than that of the studio, due to heavy lighting loads and strict conditioning requirements for the artwork and occupants. Additionally, the David Zwirner space is in a converted warehouse with significant penetrations along its façade, making heating and cooling losses through the envelope likely. In addition to the amount of energy that the gallery and studio use, the emissions from the NYC grid also play a contributing factor. As the city grid gets cleaner and brings more renewable energy online, the emissions per kWh of energy used will also decrease.

### MATERIAL USE BREAKDOWN

Although material use only accounts for 13% of total emissions in the exhibition, material selections are more easily changed than behavior in the other categories. This chart breaks down the materials in the show in more detail, showing the materials used in every phase of the exhibition's creation. The largest four material categories, by emissions level, are painting canvas, the outdoor studio created by Ancart to work in Los Angeles, the pedestals created by David Zwirner for the concrete sculptures, and marketing, which is comprised of a single ad in Art Forum.



### Total Material Use is 4.16 tons CO2e or

0.5 typical American homes

69 urban seedlings grown for 10 years

### MATERIAL EMISSIONS PER PAINTING

The chart below breaks down all material components of a single painting, and indicates their respective emissions. In line with the overall material findings above, the canvas has the largest emissions footprint of any single painting component, due to the energy intensive production process and the relative amount used.



Painting ANCHA0318

Material	Amount Used	kg CO2e	tons CO2e
Canvas	2,688 in <sup>3</sup>	37.44	0.037
Wood Frame	4,480 in <sup>3</sup>	5.29	0.0053
Walnut Frame	528 in <sup>3</sup>	2.30	0.0023
Oil Frame Finish	1,936 in <sup>2</sup>	0.16	0.00016
Sennelier Oil Stick	2,813 ml	1.70	0.0017
	<b>Total</b>	<b>46.90</b>	<b>0.047</b>

### EXAMPLE MATERIAL CALCULATIONS

#### Duct Tape 0.01 tons CO2e

50 Rolls

- Cotton Grid: 0.004 kgCO2e
- Polyethylene Backing: 0.0015 kg CO2e
- Adhesive: 1.5 kg CO2e
- Cardboard Roll: 0.09 kg CO2e
- Shipping: 0.20 kg CO2e



#### Sculpture Concrete 0.34 tons CO2e

4,000 lbs Concrete

- White Cement: 615 lbs
- White Marble: 923 lbs
- Stone: 1230 lbs
- Sand: 1230 lbs



#### Art Forum Advertisement 0.67 tons CO2e

1 Printed Advertisement

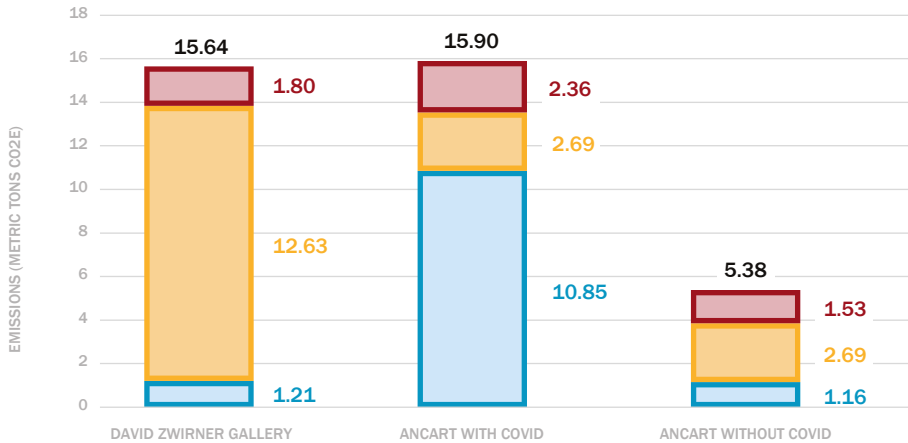
- 1.33 kg CO2e per magazine
- 50,000 copy distribution
- 100 advertisements total



## IMPACT OF COVID-19 PANDEMIC

The precautions and actions taken by the artist due to the COVID-19 pandemic had a significant impact on the overall emissions of the project, accounting for 33% of overall emissions. As discussed above and shown in the chart below, this is due to the extra cross-country travel required of the artist and the packing materials purchased for the trip. David Zwirner and the Ancart studio each contributed half of the overall emissions to the exhibition, with the

gallery’s building energy and Ancart’s travel accounting for the majority of emissions. However, if the exhibition had been created in a non-pandemic scenario, David Zwirner would have contributed three times the emissions of the Ancart studio. In this non-pandemic scenario, the emissions from the David Zwirner gallery building energy use would account for 40% of the overall exhibition emissions.



## A COVID-19 Cross Country Flight is 2.21 Tons CO2e or

0.25 typical American homes

36.83 urban seedlings grown in 10 years

## RECOMMENDATIONS

Based on this analysis, there are several ways that David Zwirner and the Ancart studio can reduce their carbon footprint. To start, removing the travel and packing associated with the COVID-19 pandemic would reduce the overall footprint by 33%. The second largest reduction would come from improving the energy efficiency of the David Zwirner building on 19th street. This can be done through mechanical upgrades, envelope improvements, heating and cooling setbacks when the space is unoccupied, or by purchasing RECs from green energy suppliers to cover the total electricity use. A potential New York provider of RECs is Schneider Electric, cost information is below. David Zwirner might also re-evaluate the conditioning requirements for each exhibition with artists and insurance companies, to ease the humidification and cooling set points of the show to reduce energy use.

energy use. Ancart’s commute to Brooklyn accounts for 5% of emissions without COVID-19. If this daily trip were taken via public transportation or an electric vehicle, this 5% emissions would decrease. The studio is judicious about reusing materials where possible and limiting their waste, so it is difficult to recommend material changes to reduce the overall footprint without changes to the art itself.

## David Zwirner Strategy Green Energy

~310 MWh / year (Building Electricity Use)

\$350-\$400 USD Annual RECs

Without the impact of COVID-19, the Ancart studio has a relatively small carbon footprint. The studio’s building energy use accounts for 9% of the overall exhibition emissions, and 13% of the emissions if the COVID-19 related emissions are excluded. Ancart could similarly purchase RECs from green energy suppliers to reduce the emissions from their building

## Ancart Studio Strategy Carbon Offsets

10.52 tons CO2e (COVID-19 Emissions)

\$40 - \$126 USD Offsets

One option suitable for both David Zwirner and Ancart is to purchase carbon offsets. There are many companies that offer this service, and offsets can be purchased to counter carbon emissions through various sequestration measures. Examples include supporting sustainable forestry, planting trees, and capturing landfill or livestock methane gas, which otherwise would have been released. Potential U.S. vendors include BEF, terrapass, and 3Degrees.

David Zwirner chose to purchase carbon offsets through a vendor that invests in reforestation, forest conservation, and sustainable forest management. This fully offsets the 31.54 tons of carbon produced by the exhibition, making the event carbon neutral.

*The carbon emissions calculated here are a representation of the exhibition’s use, including transportation, building energy use and purchased materials. The results of this model are accurate based upon the assumptions provided about the creation of the exhibition.*