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TRUE

FACILITY CASE STUDY

**Vornado Realty Trust
555 California Street**

San Francisco, California, USA

555 California Street

Vornado Realty Trust

Certification level: Certified

Diversion rate upon certification: 90.6%

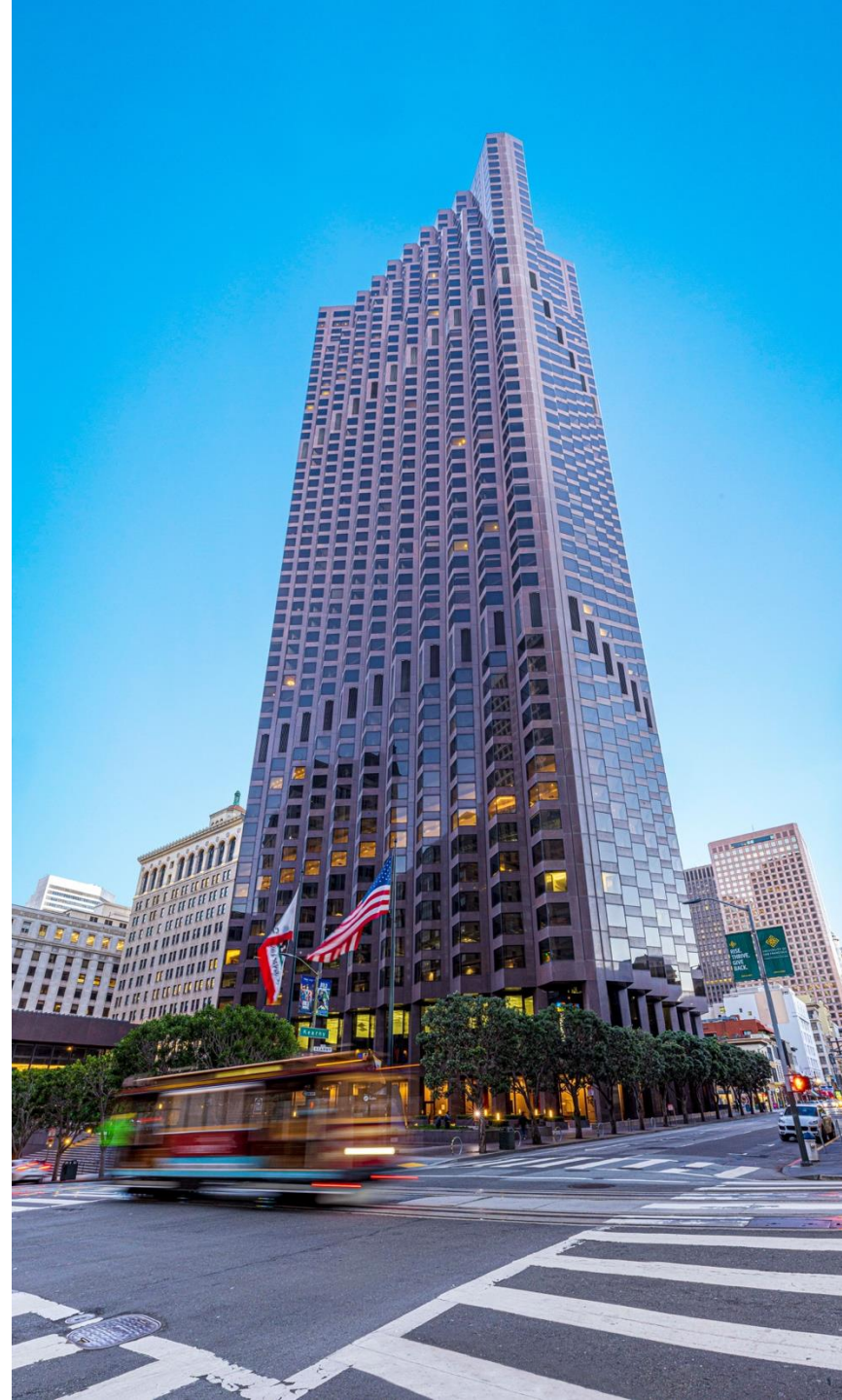
Facility location: San Francisco, CA, USA

Type of facility: Office

Website:

<https://www.vno.com/office/property/555-california-street/3311899/landing>

Contact person and information: Emily Gove,
Vice President Sustainability, EGove@vno.com



Why zero waste?

- TRUE zero waste certification is the culmination of a comprehensive waste management program first implemented in 2018 and recognizes the efforts of building management, tenants, on-site food service vendors, engineering, janitorial, and landscaping services to care about handling waste properly and effectively.
- To be zero waste certified in San Francisco is an accomplishment that can lead others in the community to emulate

Biggest wins

- The biggest benefit of the certification process is to understand and improve upon the complexity of the waste management system, requiring coordination and communication amongst many parties to achieve operational efficiencies.
- Recognizing that the backbone and day-to-day backstop of waste management at 555 California is the janitorial waste sorting team who ensure that all waste streams leaving the building are uncontaminated.

Credit category: Redesign

- In February 2018, 555 California, San Francisco's largest office building, was diverting only 51% of its waste and facing a 50% surcharge from Recology San Francisco for failing waste audits. Great Forest consultants partnered with Vornado Realty Trust and ABM janitorial services to implement waste sorting procedures and launch an intensive tenant education program to improve upstream waste separation.



A member of the waste sorting team at work separating materials into recycling, compost and residual streams.

Credit category: Reduce

- At 555 California (and across the broader portfolio of Vornado properties), we use the LiveWorkDo (LWD) app/portal, which can be downloaded and operated on a phone or via a desktop. The system for accessing the building by way of QR codes (rather than paper tickets) went live in 2021. An estimated 1,426 sheets of paper are avoided each month.



The Vornado LIVE.WORK.DO. app is a resource for tenants of Vornado Realty Trust that helps users connect with their building and community.

Credit category: Reuse

- The building's Concourse features meals (soups, sandwiches, salads) from vendor Proper Food, which are donated through Food Runners, a food recovery expeditor. Our tenant, KKR, also operates a food service kitchen which donates excess food production through their vendor, Vesta Food Services, to several local food recovery organizations.
- In the last year, Proper Food and KKR have donated over 5,560 pounds of food to soup kitchens and shelters.



Proper Food inventories food items with sealed packaging that have not been purchase at closing daily, selects items for donation, and logs them into a tracking sheet.

Credit category: Compost (Re-Earth)

- Janitorial collects all waste from tenants and food service locations and sorts the materials into recycling, landfill, and compost streams.
- A 20-yard compactor is used for organics from tenants and yard trimmings from a landscaping service, averaging more than 4 tons per week.
- Recology San Francisco, the single-franchise hauler, collects the compactor once a week and takes the load to the Tunnel Avenue transfer station and then to Jepsom Prairie for aerated static pile composting to make organic compost in 45-60 days.



555 California uses a compactor for the compost stream

- One week's compost weighed 4.24 tons on May 30, 2019

Recology's audit threshold for compost is 5% contamination or less. The presence of glass or electronic waste or hazardous waste is an automatic fail.



One week's compostables laid out for audit by Recology San Francisco at their transfer facility.

Credit category: Recycle

- Recology San Francisco, as the sole service provider for recycling, handles life cycle activities in specific locations and with vendors who are considered confidential by Recology as there is competition in recycling markets.
- When Iron Mountain or Shred-It (Stericycle) shreds paper in San Francisco, the material is collected and transported to a recycling facility or a paper mill where it is processed into pulp, mixed with fresh pulp and recycled into new paper products.

- About 80 percent is **paper and cardboard**. Bundled by grade, junk mail being less valuable than office white, the paper was sold to India, the Philippines, India, Indonesia, and Vietnam where it's pulped, de-inked and "downcycled" into lesser paper products.

- **Plastic** is sorted using optical sorters and sent to two new recycling plants in the Central Valley. It's shredded, pelletized and remolded into products like food packaging, jacket insulation or faux wood.

- **Metal** cans go to a foundry in Oregon and are used to make other steel products, like construction rebar

- **Aluminum**, an eddy-current separator repels aluminum cans off the sorting line. They are then baled and, being cheaper and less energy-intensive to recycle than refine than steel, are sent to domestic foundries (Tennessee) or overseas plants, where cans become cans again.

- **Glass** is sent to a manufacturing plant in Fairfield, California. It's sorted by color, melted for sterilization and reblown. Six weeks after you throw a bottle in the blue bin, it can be back on the shelf in San Francisco.

Recology's Recycle Central plant sorts approximately 750 tons of commingled materials every day—40 to 45 tons per hour.

Credit category: Zero Waste Reporting

- Raw weight and volume data is received from Recology San Francisco monthly and aggregated for 555 California building management and Vornado Realty Trust by Great Forest Complete Waste Solutions. Roll off (compactor and debris box) data is actual, routes data is based on subscribed service volumes.
- A baseline comprehensive audit was performed in August 2023.
- 211 pounds of representative sorted mixed recycling were subjected to a secondary audit to understand the effectiveness of the sorters which found 95.55% correctly sorted recyclables.



Credit category: Diversion (Min. 90%)

- Raw weight and volume data is received from Recology San Francisco monthly and aggregated for 555 California management and Vornado Realty Trust by Great Forest Complete Waste Solutions. Roll off (compactor and debris box) data is actual, routes data is based on subscribed service volumes.
- Shredded paper is reported annually/monthly by Iron Mountain and monthly by tenants using Shred-It/Stericycle services.
- Landscaping waste is reported by Allbay Landscaping.
- Food donations are reported quarterly by Proper Food, a vendor in the concourse, and by tenant KKR that has a kitchen and food service.

555 California 2024 Weight and Volume Reporting thru December

	Jan (31)	Feb (28)	Mar (31)	Apr (30)	May (31)	June (30)	July (31)	Aug (31)	Sept (30)	Oct (31)
reported in tons*										
Trash- 2 x 2 yard RELs (M-F)	9.65	9.65	9.65	9.65	9.65	9.65	9.65	9.65	9.65	9.65
Trash from debris boxes		2.72	0.39				1.26			0.73
Trash total	9.65	12.37	10.04	9.65	9.65	9.65	10.91	9.65	9.65	10.38
Subscribed service levels	Daily MTuWThF <---2 x 2-yd RELs + 2 x 96-gal toters--->									
Recycling--18-yard compactor	8.47	11.73	9.34	8.29	11.25	10.32	8.66	9.01	9.42	13.43
Recycling from debris boxes		1.59								
Recycling total	8.47	13.32	9.34	8.29	11.25	10.32	8.66	9.01	9.42	13.43
Subscribed service weekly	<-- weekly -->									
reported in tons*										
Organics (compost) - 20-yard compactor (Th)	14.79	15.69	20.57	14	18.31	15.83	14.83	19.53	16.67	18.92
Subscribed weekly service resumed	Th 12/30/22 <-- weekly -->									
Organics --32 subscribed toters (7-2022)	0	0	0	0	0	0	0	0	0	0
202 gallons in a cubic yard; :317 cubic yard = 64-gallons										
Subscribed service levels										
Recycle Vol./Diversion Discount % per Recology	55%	58%	58%	56%	58%	57%	55%	57%	56%	57%
Volumetric diversion rate % per Recology	80%	83%	83%	81%	83%	82%	80%	82%	81%	82%

* A ton is a measurement of weight. A cubic yard is a measurement of volume. The number of tons that a given cubic yard of material weighs depends on the material. Recology uses the following conversions: compost = 400 lbs. per cubic yard; recycling = 260 lbs. per cubic yard; trash = 225 lbs per cubic yard. Recology assumes 80% full, uses an estimated 4.33 weeks per month and a compaction ratio of 3:1. Subscribed service and volume, not actual volume and weight is used to calculate the recycling volume discount. Debris boxes do not count for or against the diversion discount. Recology implemented a 14.42% cost increase July 1, 2017 through raising the discount floor from 10% to 25%. Recology implemented an overall 5.9% cost increase July 1, 2018 by "linearizing" toter service costs.

Monthly weight and volume spreadsheet prepared for Vornado by Great Forest Complete Waste Solutions.

Credit category: Zero Waste Purchasing

- Vornado Realty Trust recognizes the importance of purchasing sustainable products for all materials that are within its portfolio and property management’s control, including office goods, cleaning supplies and materials for new construction, renovations and additions.
- By following these guidelines which are updated annually, Vornado intends to reduce the environmental impact of materials acquired for use in all its buildings.

VORNADO
REALTY TRUST

Vornado Sustainable Purchasing Policy
555 California Street

Vornado Realty Trust recognizes the importance of purchasing sustainable products for all materials that are within its portfolio and property management’s control, including office goods, cleaning supplies and materials for new construction, renovations and additions.

By following these guidelines, Vornado intends to reduce the environmental impact of materials acquired for use in all its buildings.

This policy will serve as purchasing guidelines for 555 California and its product suppliers and will be effective January 1, 2017. Policy is updated annually, most recently October 1, 2024.

1. General Purchasing Standards

- Durable goods are preferred over single-use products
- Used or refurbished goods are preferred over new goods in cases where safety will not be compromised
- Reduce packaging and buy in larger units
- Lease, rent and share equipment
- Purchase compost for landscaping from the facility that composts our material
 - Recology SF

2. Sustainable Purchasing of Ongoing Consumables

All low-cost materials that are frequently used and replaced through regular purchase shall be considered ongoing consumables. For Vornado offices, ongoing consumables primarily consist of sanitary paper goods and other office supplies, such as paper products (including copy paper, envelopes, and folders), binders, batteries, and desk accessories.

In order to maintain a preferable level of sustainability, Vornado’s goal is that 75% (by cost) of their purchased ongoing consumables per year meet any combination of the following criteria, unless stated otherwise:

- A minimum of 30% post-consumer recycled content for office/copy paper (required 100% of the time)
- Contain at least 50% rapidly renewable materials.
- Contain at least 50% materials locally harvested/extracted and processed (within 100 miles of the project).
- Forest Stewardship Council (FSC)-certified paper and wood products.
- Batteries, where possible, be rechargeable; and toner cartridges for laser printers remanufactured.
- Food and beverage labeled USDA Organic, Food Alliance Certified, Rainforest Alliance Certified, Protected Harvest Certified, Fair Trade, or Marine Stewardship Council’s Blue Eco-Label, or labeled with the European Community Organic Production logo in accordance with Regulations (EC) No. 834/2007 and (EC) No. 889/2008.
- Food or beverages with raw materials harvested and produced within 100 miles of the site.
- Bio-based products that meet the Sustainability Agriculture Network’s Sustainable Agriculture Standard and whose raw materials are tested using ASTM Test Method D6866

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Vornado’s Sustainable Purchasing Policy, revised December 2024.

Credit category: Leadership

- The facility zero waste goal was developed by the team composed of Vornado Realty Trust's Vice President of Sustainability and the General Manager of 555 California with input from Great Forest's consultant.
- To support tenant's adherence to the recycling policy and separation requirements set forth by the city of San Francisco, Vornado has created custom signage for waste collection areas. Labels are also available from Recology San Francisco.



Vornado's custom signage for tenants of 555 California.

Credit category: Training

- The sorting team was first trained in March 2018 by the Great Forest consultant on “what-goes-where” and sorting techniques.
- Seasonal “what-goes-where” training and an educational presentation are provided to tenants quarterly as well as at lunch n' learns throughout the year.
- A multi-pronged approach to achieving greater diversion has been developed emphasizing implementation of centralized collection by tenants and usage of dishwashers.
- Employee training for engineering and security staff was provided and available on LiveWorkDo.



Employee training provided by Great Forest in October 2024.

Credit category: Zero Waste Analysis

- On August 3, 2023, Great Forest conducted a waste stream audit for the Vornado Realty Trust at 555 California in San Francisco, California. The purpose was to analyze the total waste stream to:
 - Ensure all handling and removal processes are compliant with local and state regulations
 - Verify the building is performing as specified within the established waste management policy
 - Understand the waste profile and identify opportunities for improvement
- On the day of the audit, the overall waste diversion rate was 87.12% representing the properly collected recycling minus any waste contamination found in the recycling stream.
- If all recyclables were properly separated and all liquids emptied, the building would have a Potential Diversion Rate of 98.85%.



Waste staged for sorting and auditing.

Credit category: Hazardous Waste Prevention

- The Hazardous Waste Reduction Policy for 555 California is a comprehensive approach involving various strategies across pest management, cleaning operations, recycling of universal waste, responsible purchasing, identification of hazardous waste, and proper storage practices.
- Engineering conducts an annual asbestos training which covers all hazmat disposal regarding asbestos and attends a class through Recology detailing correct sorting of waste streams—garbage, recycling, green waste, and what would be hazardous materials.
- Able/ABM, the building's engineering company, has monthly safety training that each employee must complete. Hazard communication SDS, PPE and more are a part of those trainings.



Engineering's hazardous materials room.

Credit category: Closed Loop System

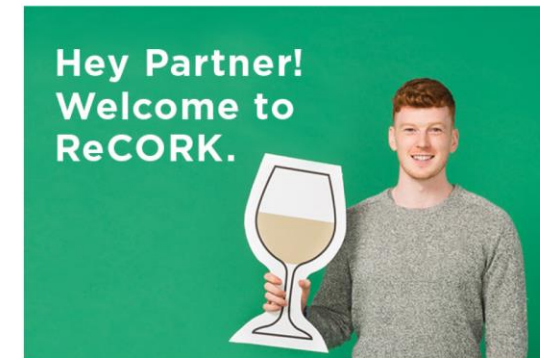
- Compostables, including yard waste and tree trimming materials, are collected weekly by Recology, taken to the transfer station at Tunnel Avenue, and then to Recology's composting facility at Jepsom Prairie near Vacaville.
- Allbay Landscaping is purchasing organic Wonder Grow compost made by Recology, which is produced from compostable products from the project site.
- Allbay's purchase at Broadmoor Landscaping in South San Francisco ensures that the material remains in local markets and comes back to the site.



The closed loop cycle of annual tree trimming becoming compost that is used on landscaping at 555 California.

Credit category: Innovation

- The Vault restaurant on the Concourse at 555 California collects wine bottle corks and sends them to ReCork as a collection partner.
- ReCORK Collection Partners ship collected natural corks directly to ReCork, which grinds them down, add them to trimmings from punching out new corks, and includes them in a recycling batch. These corks form the post-consumer portion of ReCork's recycling stream. Corks are upcycled into cork products, including footwear.



Hello The Vault,
Thank you for joining the ReCORK cause
as a Collection Partner.

The ReCork collection and upcycling process with The Vault as a collection partner.

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We are proud to have achieved TRUE certification, the result of a long-term collaborative effort by our dedicated property management team, janitorial staff, zero waste consultant, landscapers, our environmentally conscious tenants and vendors. This milestone demonstrates Vornado's commitment to operational excellence and fostering a collaborative culture in the journey to zero waste.

*Diana Rosenblatt, General Manager
555 California Street Campus
Vornado Realty Trust*

Zero waste is our mission
true.gbci.org