

Full circle corporate real estate: The transformative power of the Stewardship Strategies programme

Received (in revised form): 12th October, 2024



Rose Tourje

Rose Tourje*

Founder and President, Asset Network for Education Worldwide (ANEW), USA

Ann Kovara**

AIA Emeritus LEED AP (Legacy), USA



Ann Kovara

Rose Tourje serves as the Founder and the President of Asset Network for Education Worldwide (ANEW). Established in 2005, ANEW is a woman-founded, women-led California benefit corporation with 501(c)(3) status. This organisation's vision and mission is to raise awareness and educate companies who inspire many to make informed choices with their office surplus. This practise causes good quality office surplus items to stay in use and out of landfill, and allows discarded items to become available to community-based non-profit organisations, schools, women's shelters, clinics, food banks, and municipalities such as fire and police.

Ann Kovara, AIA Emeritus LEED AP (Legacy), is an architect, and author; she serves as the sustainability auditor for ANEW. She has 43 years of experience as a licenced architect, sustainability consultant, and project/programme manager, including responsibility for 15 projects greater than US \$100m. Ann is the author of 'Moving Sam Maloof: Saving an American Woodworking Legend's Home and Workshops'.

ABSTRACT

This paper's purpose is to understand the practical application of values and benefits related to responsible resource management, societal well-being, and environmental preservation. Presented

herein is the Stewardship Strategies programme.¹ Use of this process encourages colleagues of the built-environment to adopt proactive measures related to the dispersal of a company's furniture, fixtures, and equipment (FF&E) and surplus construction materials. This method minimises waste and fosters sustainable resource management. This programme's chain-of-custody process also positively benefits local communities by providing an encore to office surplus for a second life and by increasing circularity. In particular, the Stewardship Strategies programme is an effective tool when the objective is to sustainably decommission a workplace environment. This comprehensive programme should be considered as an integrated approach to the following six key alternative strategies: reuse, resale, repurpose, recycle, recover, and report + record. This paper presents three real-life case studies that apply these key strategies to promote responsible resource management and their beneficial effects. This article's scope addresses the challenges present in today's world regarding the consequences related to greenhouse gas (GHG) emissions, which contribute to atmospheric heat retention, and are becoming increasingly manifest in the environment. For this reason, it is important to adopt proactive measures to minimise waste and foster sustainable resource management and circularity to positively impact local communities.

*Asset Network for Education Worldwide (ANEW),
526 La Mirada Avenue,
San Marino, CA 91108,
USA

Tel: +1 213 239 4694;
E-mail: rose.tourje@anewfound.org

**AIA Emeritus LEED AP
(Legacy),
6110 E 2nd Street,
Tucson, AZ 85711,
USA

Tel: +1 626 807 8830;
E-mail: akovara@yahoo.com

Corporate Real Estate Journal
Vol. 14 No. 3, pp. 254–265
© Henry Stewart Publications,
2043–9148

Corporate Real Estate Journal is
included in **The Business and
Management Collection**
(<https://hstalks.com/business/>)

Keywords: *stewardship, strategies, greenhouse gas (GHG), circularity, sustainability, and responsibility*

DOI: 10.69554/UYKF2624

AGENDA POINTS/OBJECTIVES

The agenda points and learning objectives in this paper are as follows.

Objective #1: Practical application of values and benefits

Learn to effectively utilise key stewardship strategies to foster sustainable resource management and minimise waste, the goal of which is to positively impact communities, increasing real estate investments and supporting the environment.

Objective #2: Effective stewardship strategies utilisation

Understand the practical application of values and benefits related to responsible management of resources, societal well-being, and environmental preservation.

Objective #3: Identify the consequences of gases

Identify the consequences of gases that contribute to atmospheric heat retention on both society and the environment.

Objective #4: Real-life case studies

Consider real-life case studies that apply key stewardship strategies to promote sustainable resource management and their positive effect on the environment.

DEFINITIONS

Some definitions related to the Stewardship Strategies programme include the following.

Stewardship strategies

A programme for responsible management of a company's dispersal of surplus

FF&E, construction materials, and other items. This programme's chain-of-custody process benefits communities by offering this office surplus a second life to community organisations.

Sustainable design

Incorporating practises that reduce single-use materials, minimise environmental impact, and are resilient to promote long-term health benefits.

Circularity

This refers to the circular economy and measures taken to design for reuse, durability, recycling, and remanufacturing, as well as to maintain original components, materials, and products.

Net zero

The state is achieved when there is a balance between carbon emitted in the atmosphere and carbon removed from it.

Corporate social responsibility

Corporate social responsibility (CSR) is a business model in which companies integrate social and environmental concerns into their operations and interactions with stakeholders. CSR initiatives are typically voluntary and go beyond regulatory requirements, aiming to contribute positively to society while achieving business success. The key CSR elements include environmental sustainability, ethical practises, community engagement, social, and economic responsibility.

Furniture, fixtures, and equipment

FF&E is defined as office products that are made available for stewardship and are no longer needed by a company.

Health, safety, and welfare

Health, safety, and welfare (HSW) is an important aspect of many professional licencing requirements, particularly those

involved in corporate real estate, design and architecture, and construction, focusing on ensuring that designs promote the public's well-being by considering accessibility, safety, indoor air quality, and overall health. Accessible design continuing education (CE) coursework often addresses topics like universal design principles, which concern the creation of environments that are usable by all people, regardless of ability. HSW coursework typically covers regulatory compliance and health and safety codes, the review of which leads to proficiency in understanding and applying laws and standards, such as the Americans with Disabilities Act (ADA), as well as building codes and regulations that impact public health and safety.

Zero net carbon design

Zero net carbon design (ZNCD) is an important concept in sustainable architecture, focusing on creating buildings that have a carbon-neutral or net-zero carbon footprint. For example, by using renewable energy sources such as energy-efficient building materials, renewable energy systems (such as solar and wind) and sustainable construction practises, buildings are designed to produce as much renewable energy as they consume, thereby mitigating the fossil fuel-based carbon dioxide (CO₂) energy consumption impacts.

The importance of ZNCD lies primarily in its environmental impact, regulatory compliance, and economic benefits, which can lead to cost savings in energy consumption and potential incentives for sustainable building practises.

For example, understanding ZNCD is now a legal requirement for all California architects. These professionals must complete five hours of continuing education (CE) coursework related to ZNCD for all licence renewals occurring on or after 1st January, 2023.

This requirement ensures that architects stay updated on best practises and innovations

in ZNCD. The ZNCD CE coursework aims to satisfy this professional licencing requirement. The courses cover essential topics related to designing carbon-neutral or zero carbon buildings and serve to position architects and firms as leaders in sustainable design, attracting clients who prioritise environmental responsibility. By integrating ZNCD principles, architects contribute to a more sustainable future and ensure that they meet the latest industry standards and legal requirements.

Objective #1

Understand the practical application of values and benefits related to responsible management of resources, societal well-being, and environmental preservation.

Repurposing FF&E and salvaged construction materials to non-profits provides these organisations with much-needed resources. This helps them operate more effectively and advance their missions. Non-profits often support underserved communities, and by supplying them with repurposed FF&E, stewardship contributes to the broader social good.

Providing non-profits with office surplus helps level the playing field by giving them access to quality resources they might not otherwise afford. By supporting non-profits with necessary materials, these organisations can focus more on their core activities and services, thus amplifying their positive impact on the community. Ensuring that resources are directed to organisations that serve marginalised or underserved populations fosters social equity and inclusion.

Examples of the Stewardship Strategy programme include office surplus donations and community engagement. Companies that repurpose and donate office furniture, equipment and supplies to non-profits help these organisations reduce operating costs and improve their facilities. By involving non-profits in stewardship programmes, organisations can build stronger community

connections and support local initiatives. By integrating social considerations into stewardship practises, organisations contribute to a fairer and more equitable society while also supporting the missions of non-profit organisations and community groups.

Community aspects

Companies with sustainable practises contribute to local economies by directing revenue back into the community and expanding the local tax base. This can support public services and infrastructure improvements. Sustainable practises and green initiatives can lead to job creation in local areas, as companies often require new roles for managing and implementing these practises.

Increasing green building practise awareness and adoption within sectors, such as real estate, architecture, and construction, contribute to more sustainable development. This shift helps reduce environmental impact and promotes responsible resource use. As sustainable practises become more mainstream, legislation related to resource recovery and environmental responsibility is gaining traction.

The GHG Protocol Corporate Standard

The GHG Protocol Corporate Standard is an internationally recognised framework for measuring and managing greenhouse gas (GHG) emissions.² This protocol was first introduced at the GHG Protocol Conference in 1998, which was sponsored by the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI). It is widely used due to its transparency, verifiability, and effectiveness in tracking emissions.

The GHG Protocol benefits

The GHG Protocol provides a reliable method for tracking and managing emissions, ensuring transparency and credibility. This protocol also facilitates comprehensive

reporting on GHG emissions, supporting environmental performance and regulatory compliance. It is also of benefit because it eliminates greenwash; it ensures that claims about sustainability are backed by verifiable data, avoiding misleading or exaggerated environmental claims. By adhering to the GHG Protocol, businesses can effectively measure and manage their GHG emissions, improve their environmental performance, and demonstrate their commitment to sustainability.

Emissions classification

The GHG Protocol classifies a company's emissions into four scopes.

Scope 1: Direct emissions

Emissions from owned or controlled sources. Direct emissions from burning fuel in company-owned vehicles, heating, and cooling systems in buildings.

Scope 2: Indirect emissions from purchased energy

Emissions resulting from the generation of purchased electricity, steam, heating, and cooling consumed by the reporting company. Examples include emissions from electricity used in office buildings and steam used in manufacturing processes.

Scope 3: Other indirect emissions

Indirect emissions that are not included in Scope 2 include emissions from the production of purchased goods and services, business travel, waste disposal, and various forms of transport such as truck tailpipe emissions.

Scope 4: GHG emissions avoidance

Scope 4 refers to the reductions in GHG emissions that occur due to the use of a product or through measures like diverting materials from the waste stream. These emissions are considered 'avoided' because they represent emissions that did not occur as a result of specific practises or strategies.

This concept is crucial for providing a more accurate and comprehensive estimate of a product's real-world climate impact.

Scope 4 includes the emissions avoided by repurposing, recycling or otherwise diverting from landfill FF&E, through the Surplus Stewardship Programme's alternative strategies. Also included under this scope are the emissions avoided by using energy-efficient products or technologies that reduce the need for energy production from fossil fuels.

Calculating Scope 4 avoided emissions provides a more accurate representation of the real-world climate impact of a product or practise. It helps account for the emissions reductions that occur outside the direct life cycle of the product. Professionals and organisations are increasingly interested in quantifying their positive climate impact. By calculating avoided emissions, they can demonstrate the effectiveness of their sustainability efforts and strategies.

Understanding avoided emissions helps organisations make informed decisions about resource management, sustainability practises and investments, enhancing their overall environmental performance. Accurate calculation of avoided emissions supports transparent reporting and verification of sustainability goals, helping to align with environmental standards and frameworks. By incorporating Scope 4 avoided emissions into their environmental assessments, organisations can better quantify their contributions to reducing GHG emissions and improve their overall sustainability strategies.

Objective #2

Learn to effectively utilise the Stewardship Strategies programme to foster sustainable resource management and minimise waste, the goal of which is to positively impact communities and the environment.

Stewardship programme benefits

A comprehensive stewardship programme should consider as an integrated approach

six key alternative strategies for decommissioning workplace FF&E: *reuse, resale, repurpose, recycle, recover, and report + record*.

Effective stewardship plays a crucial role in supporting environmental goals by employing strategies that reduce waste and enhance resource efficiency. In particular, landfill diversion reduces the amount of waste sent to landfills, which helps decrease methane emissions and other pollutants associated with landfill sites.

Resource conservation also promotes the efficient use of resources by extending the life-cycle of materials and minimising the need for new raw materials. By employing strategies such as recycling and energy recovery, stewardship supports overall environmental sustainability and reduces the ecological footprint of human activities. Community support also provides valuable materials and items to organisations and individuals in need.

There are two stewardship categories. The first is *Group I Construction Materials*, which are those materials physically attached to and integrated into the building's structure and interior décor. The second category is *Group II Office Surplus*, which are loose objects such as office furniture, equipment, and supplies.

A description of each of the six key alternative strategies includes the following:

Reuse

The reuse strategy allows for the internal reuse of office surplus by donors that was previously destined for landfill, thus extending the life of materials and items by finding new uses for them rather than disposing of them. For example, a bank might reuse its donated FF&E at a nearby branch. This reduces the need for new resources and minimises waste.

Unwanted office surplus or construction debris can often be reused directly in new products or processes. Useful materials can be extracted from waste products or by-products. For example, metals from

electronic waste or construction debris can be given an encore.

Resale

The resale strategy involves decommissioned office surplus sales with perceived value on the open market, such as Herman Miller Aeron chairs. Selling items that are still in good condition to extend their life cycle and provide value to others reduces waste and conserves resources. This method can also provide affordable options for buyers.

Repurpose

Both donated office surplus and salvaged construction materials can significantly benefit community organisations, public agencies, and underserved populations.

Typical recipients of donated FF&E include non-profit entities, such as schools, after-school youth programmes, churches, senior centres, homeless shelters, and various community groups. Companies that donate workplace surplus to non-profits, at no cost to those organisations, help these groups reduce operating costs, improve their facilities, and extend their public services. Note that for-profit companies are not considered possible donation recipients.

Recycle

Recycling workplace surplus supports sustainable practises and helps create a circular economy where materials are continuously reused and repurposed. A benefit of recycling is that the process helps divert materials from landfills, reducing waste and decreasing the demand for new raw materials. Effective recycling also contributes to a healthier and safer planet by minimising pollution, conserving natural resources, and reducing GHG emissions.

Take back programs³

Several US industries are making significant strides in recycling construction materials, FF&E, and other items to create

post-consumer products by reusing components, including flooring, metals, plastics, and ceiling tiles. This process further reduces the need for virgin resources. It also conserves raw materials and reduces the environmental impact of waste.

Armstrong World Industries is a key recycling industry leader in the USA. Armstrong is known for its recycling efforts in manufacturing ceiling tiles. The company incorporates recycled materials into its products, contributing to waste reduction and resource conservation.⁴

Interface is another leader in recycling. This company specialises in flooring materials. A pioneer in sustainable practises, Interface uses recycled content and innovative processes to produce environmentally friendly flooring solutions.⁵

The recycling process, however, includes many challenges and benefits. Different governmental jurisdictions have varying rules, regulations, methods, and processes for recycling. This complexity can lead to confusion and apathy among the general public, making it harder to achieve widespread recycling success. Promoting effective recycling practises and simplifying regulations can help overcome the challenges associated with recycling and lead to more widespread adoption, resulting in lasting environmental benefits.

Recover: Waste-to-energy (WtE)^{17,18,19}

WtE plants convert discarded materials to energy. This technology offers an alternative to traditional energy sources such as oil, gas, and coal. WtE reduces reliance on fossil fuels while minimising landfill use and methane emissions.

Report + Record

The report + record strategies include collecting project decommissioning metrics, waste tracking, and the creation of verifiable documents for sustainability-related reports. This process involves keeping

detailed records of stewardship activities, including the source, use and the disposition of materials. For example, documenting and communicating the amount of surplus materials reused, resold, repurposed, recycled, recovered or sent to the landfill is an important element of the record + report strategies.

Incorporating record + report into the Surplus Stewardship approach enhances the overall effectiveness of sustainability programmes by providing clear documentation and communication of efforts, which supports continuous improvement and accountability. The benefits of adding record + report include transparency, and verifiability. As such, it avoids greenwashing.⁶

Transparency ensures that stewardship practises are open and accessible, one that builds trust with stakeholders. Verifiability provides a means to confirm that the processes and outcomes are performed in a responsible and sustainable manner.

Stewardship programme financial incentives

Financial incentives are possible to achieve under four of the stewardship programme alternative strategies. They include *reuse*, *resale*, *repurpose*, and *recycle*.

Reuse

During the reuse phase of a stewardship strategies project, the labour decommissioning provider works with the donor to create a list of surplus goods that might be of future use somewhere in the company's supply chain, bank branches, and other facilities. This approach saves the donor the expense of acquiring new FF&E and/or warehousing the existing surplus, as well as working to divert the items from landfill.

Resale

The labour provider conducts a site assessment of the donor's facilities during the pre-project phase to identify high retail

value items. The labour provider then prepares a detailed inventory of possible resale items and determines the surplus streams with the donor. With the shortlist in hand, the labour provider notifies the nationwide buyers' network, and bidding occurs. After the FF&E sale, a small percentage of the proceeds go to the labour provider, while the remainder of the funds go to the donor. The non-profit Surplus Stewardship consultant, however, does not receive any sale proceeds. Once again, the surplus goods are diverted from the landfill.

Repurpose

At the on-site decommissioning phase's end, the labour provider sends a receipt to the Surplus Stewardship consultant that includes a complete list of donated office surplus and salvaged construction materials delivered to non-profit recipient(s). The consultant then provides the donor with a tax receipt. The donor subsequently determines the value of each donated FF&E item for tax purposes. The repurposed goods are considered diverted from the landfill.

Recycle

Recycling centres offer an immediate revenue exchange. Cash is provided at recycling centres based on the daily commodity rate for clean metals, such as copper, aluminium, and steel. The cash proceeds are shared between the labour provider and the donor. Landfill diversion is also accomplished for this strategy.

Objective #3

Identify the consequences of gases that contribute to atmospheric heat retention on both society and the environment.

Climate change is real

The Paris Agreement was adopted within the United Nations Framework Convention on Climate Change (UNFCCC) in December 2015.⁷ This international treaty aims to

limit global temperature rise to well below 2°C (3.6°F) above pre-industrial revolution levels, with efforts to limit the increase to 1.5°C (2.7°F).⁸ The Paris Agreement represents a global commitment to address climate change by reducing GHG emissions and promoting sustainable development practises. Efforts to mitigate climate change require international cooperation and comprehensive strategies to transition to a low-carbon economy.

Human activities, particularly fossil fuels combustion (coal, natural gas, and oil) for energy and transport are the primary sources of increased CO₂ emissions since the Industrial Revolution. Other sources include industrial processes and land-use changes, such as deforestation. CO₂ is, however, naturally present in the atmosphere as part of the Earth's carbon cycle, involving carbon exchange among the atmosphere, oceans, soils, plants, and animals. How long do GHGs stay in the atmosphere?⁹ GHGs have varying atmospheric lifetimes, meaning they can remain in the atmosphere for different lengths of time. For example, the lifetime range for CO₂ is from about 300 to 1,000 years. It remains in the atmosphere long enough to become well-mixed globally, meaning its concentration is fairly uniform around the world regardless of emissions sources.

Methane (CH₄) is released from both natural sources and human activities. Significant human-related sources include landfills, agriculture (especially livestock) and coal, oil, and natural gas production and transport. Methane is a potent GHG, and its increased concentration in the atmosphere due to human activities contributes significantly to global warming.

Methane's (CH₄) lifetime is approximately 12 years. Methane, although shorter lived than CO₂, is significantly more effective at trapping heat in the atmosphere over a short period. Human activities disrupt the natural carbon cycle by adding more CO₂

and methane to the atmosphere. This disruption reduces forests and soils' ability to absorb and store CO₂, exacerbating the greenhouse effect. In particular, landfills are a major source of methane emissions due to the decomposition of organic waste under anaerobic conditions.

The *nitrous oxide's* (N₂O) lifetime is around 114 years. N₂O is a potent GHG with a long atmospheric lifetime, contributing significantly to global warming.

Chlorofluorocarbons' (CFCs) lifetime range is from 20 to 100 years. CFCs have been largely phased out due to their role in ozone depletion, but they also contribute to greenhouse warming.

Hydrofluorocarbons' (HFCs) lifetime range varies, generally between 15 and 29 years. HFCs are potent GHGs, used as substitutes for CFCs but still contribute to climate change.

All these gases remain in the atmosphere long enough to become well-mixed. This means their concentration levels are relatively uniform across the globe, regardless of emission location. GHG effects are felt worldwide, influencing global climate patterns and contributing to global warming. Understanding the gas atmospheric lifetimes is crucial for assessing their long-term impacts on climate change and for developing strategies to mitigate their effects.

Some efforts to mitigate climate change by diminishing GHGs include renewable energy use, improving energy efficiency and carbon sequestration. For example, shifting from fossil fuels to renewable energy sources (such as solar, wind, and hydroelectric power) is crucial for reducing CO₂ emissions.¹⁰

Improving energy efficiency in buildings, transport, and industrial processes helps reduce overall energy consumption and associated emissions. Finally, enhancing forests, soils, and other natural systems' capacity to absorb and store CO₂ is vital for balancing the carbon cycle.

GHG emissions: The big issue

In 2021, the top three GHG emissions sources in the USA were transport, electricity, and industry. These three sectors combined account for a substantial majority of the GHG emissions in the US, highlighting the areas where mitigation efforts can have the most significant impact on reducing the country's overall carbon footprint.¹¹

Transport

Twenty-eight per cent, which includes emissions from cars, trucks, buses, airplanes, trains, and ships. The primary source of GHG emissions in transport is fossil fuels' combustion, such as gasoline and diesel.

Electricity

Twenty-five per cent, the emissions from this sector are primarily from the burning of coal, natural gas and oil to generate electricity. While there has been a shift towards renewable energy sources, fossil fuels still account for a significant portion of electricity generation.

Industry

Twenty-three per cent, which encompasses emissions from industrial processes, manufacturing and goods and raw materials production. It includes direct emissions from chemical reactions during manufacturing, as well as the fossil fuels combustion for energy.

Landfills are a significant source of GHG emissions, contributing to climate change through CH₄ and CO₂ release. There are over 3,000 active municipal landfills in the USA and over 10,000 closed landfills.¹² These landfills contribute significantly to GHG emissions, particularly methane, which is released during organic waste decomposition under anaerobic conditions.

Common liquidation practises often result in discarded FF&E ending up in landfills. Not all office surplus has reuse, resale, or recycle value, leading some of the most toxic items to be added to the waste stream. According

to the US Environmental Protection Agency (EPA), when office items containing toxic chemicals are sent to landfill, these toxins can leach into the soil and water table, causing environmental pollution.¹³ Such substances are harmful to human life and the ecosystem.

The US EPA considers a toxic chemical to be any substance that may be harmful to the environment or hazardous to humans.¹⁴ Real estate professionals; architects and interior design professionals; industrial designers; and commercial furniture manufacturers, among others, are increasingly promoting post-consumer product use to improve environmental conditions. This trend has led to a reduction in furniture with toxic chemicals being sent to landfills.¹⁵

For example, at NEOCON 2022, Humanscale Design Studio launched Path, the world's first 100 per cent recyclable chair.¹⁶ Path is constructed with about 10kg of recycled content, including post-industrial material, post-consumer plastic bottles, and plastics harvested from the ocean. This innovation demonstrates a significant step towards sustainable furniture design and reducing toxic waste.

Three important strategies for reducing toxic chemicals in FF&E include using sustainable design and manufacturing, responsible disposal and recycling measures, and regulatory and policy measures. Sustainable design and manufacturing means encouraging the nontoxic, sustainable materials use in office furniture design and manufacturing, as well as promoting products such as the Path chair that are fully recyclable and made from recycled content. Responsible disposal and recycling measures include educating businesses and consumers about the importance of choosing sustainable and recyclable office furniture.

It is also important to support regulations and policies that limit toxic chemicals use in furniture, promote sustainable materials use, and incentivise manufacturers to design

products with end-of-life recyclability and minimal environmental impact. By focusing on sustainable design, responsible disposal practises, and nontoxic materials use, FF&E environmental impact can be significantly mitigated, leading to healthier ecosystems and communities.

Objective #4

Consider real-life case studies that apply key Stewardship Strategies to promote sustainable resource management and their positive effect on the environment.

Case studies

The following case studies feature examples of successful office workspace decommissioning projects. The featured project locations include Seattle, Washington, Los Angeles, California and Manhattan (New York, NY).

Case study 1: Downtown Seattle, Washington

This project concerned an international architectural design firm's commercial FF&E removal and stewardship in their downtown Seattle, Washington Class A and LEED-certified high-rise office building and local warehouse in May 2022. Key Stewardship Strategies were used to foster sustainable resource management, reduce costs for the Donor and minimise waste. Through stewardship, four local community organisations benefitted from this distribution.

The Stewardship Strategies approach supports the local community base and landfill diversion. The project statistics related to this firm's office refresh include:

- Four alternative stewardship strategies: reuse, repurpose, recycle, and report + record.
- Total office surplus diverted: 9,997kg.
- Total Scope 4 GHG emissions avoided from the waste stream: 8.50 metric tonnes.
- Total FF&E diversion rate from the landfill: 82 per cent.

Case study 2: Downtown Los Angeles, California

A major West LA architectural firm completed decommissioning FF&E from approximately 1,858m² of office space in December 2022. Through the Stewardship Strategy programme, eight local community organisations benefited from the office surplus distribution.

The project statistics related to this firm's office refresh include:

- Four alternative stewardship strategies: reuse, repurpose, recycle, and report + record.
- Total surplus diverted: 78,056kg.
- Total Scope 4 GHG emissions avoided: 66.35 metric tonnes.
- Total FF&E diversion rate from the landfill: 96 per cent.

Case study 3: Manhattan

A major global financial institution based in New York City vacated 29,729m² of space on 13 floors in a Manhattan high rise in January 2021. Through stewardship, 10 community organisations together received 61,257.65kg of office surplus, including 8 community recipient groups on the Hopi reservation in Arizona. Because of COVID-19, stricter health and safety measures were implemented inside the building, and no local community organisations were open to receive the office surplus. An increased level of security was also required during truck loading outside the building due to peaceful protests in the area.

The statistics related to the global financial institution's Manhattan office project include:

- Five alternative stewardship strategies: reuse, repurpose, recycle, recover through WtE and report + record.
- Total surplus diverted: 361,484kg.

- Total Scope 4 GHG emissions avoided from a waste stream: 307.26 metric tonnes.
- Total FF&E diversion rate from the land-fill: 88 per cent.

CONCLUSION

The Stewardship Strategies programme represents a game-changing approach to decommissioning workplace environments. Transparent and auditable, by aligning environmental responsibility with strategic asset management this innovative programme, not only reduces waste but also sets a new benchmark for corporate sustainability. It is a powerful tool that transforms how professionals in the built environment think about the life cycle of office spaces, one that is both good for the planet and efficient.

Industry thought leaders today, including in corporate real estate, architecture, construction and design, are reimagining FF&E and construction waste decommissioning for their clients. The Stewardship Strategies approach and related resource conservation practises are actually part of a broader movement or attitude. This shift in awareness emphasises the reuse and refurbishment of existing FF&E instead of procuring new furniture and/or equipment. It also relates to the consideration of facilities remodelling instead of insisting on new construction. These efforts are reshaping the industry, allowing for ecological responsibility and commercial success.

REFERENCES

- (1) 'In 2005, ANEW Reinvented Common Liquidation Practice with Surplus Stewardship®, a Certified Practice that Extends the Life Cycle of Good Condition Surplus Items Through Reuse, Resale, Repurposing and Recycling', available at <https://anewfound.org/what-is-surplus-stewardship> (accessed 9th August, 2024).
- (2) 'GHG Protocol Corporate Standard Conference of 1998 and Implemented 12 Feb 2005, Sponsored by WBCSD and the WRI', available at <https://www.wri.org/research/greenhouse-gas-protocol-0> (accessed 6th August, 2024).
- (3) 'Flooring Covering Weekly', 6th May, 2021, available at <https://www.floorcoveringweekly.com/main/topnews/recycling-initiatives-give-flooring-a-second-life—34169> (accessed 9th August, 2024).
- (4) 'Armstrong World Industries', Morningstar News, 22nd May, 2024, available at <https://www.morningstar.com/news/businesswire/20240522468217/armstrong-world-industries-introduces-new-product-to-reduce-carbon-in-commercial-buildings> (accessed 9th August, 2024).
- (5) Interface, Inc. (2024) available at <https://www.interface.com/GB/en-GB/sustainability/recycling.html> (accessed 9th August, 2024).
- (6) Apple News (2024) 'Greenwashing: The Realities Behind Sustainable Architecture', available at <https://apple.news/ACoPKtxkRxupf-pVEnFPRA> (accessed 6th August, 2024).
- (7) 'The Paris Agreement, First Adopted on 12 Dec 2015 by the United Nations Framework Convention on Climate Change (UNFCCC), Entered Into Force in Nov 2016', available at <https://unfccc.int/process-and-meetings/the-paris-agreement> (accessed 6th August, 2024).
- (8) 'UNFCCC Mandate 2c (3.6 f)', December, 2015, available at <https://unfccc.int/news/the-evidence-is-clear-the-time-for-action-is-now-we-can-halve-emissions-by-2030> (accessed 6th August, 2024).
- (9) 'How Long Do GHGs Stay in the Atmosphere?', available at <https://blogs.edf.org/climate411/2008/02/26/ghg-lifetimes> (accessed 6th August, 2024).
- (10) 'The Challenge of Transitioning from Fossil Fuels to Renewable Energy', available at <https://iee.psu.edu/news/blog/transitioning-renewable-energy-challenges-and-opportunities> (accessed 6th August, 2024).

- (11) 'What Are the Main Sources of GHG in the U.S.? Overview of Greenhouse Gases', available at <https://www.epa.gov/ghgemissions/overview-greenhouse-gasses> (accessed 6th August, 2024).
- (12) 'How Many Landfills Are There in the U.S.?', available at <https://www.colorado.edu/ecenter/2021/04/15/hidden-damage-landfills> (accessed 6th August, 2024).
- (13) 'Chemicals Under the Toxic Substances Control Act (TCSA) as Amended by Frank R. Lautenberg Chemical Safety Act for the 21st Century Act, 22 June 2016, U.S. EPA, August 2024', available at <https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act> (accessed 6th August, 2024).
- (14) 'How Does the U.S. EPA Define Chemicals as Toxic Substances?', available at <https://www.epa.gov/law/regulations/summary-toxic-substances-control-act> (accessed 6th August, 2024).
- (15) 'The Trend Towards the Use of Post-Consumer Products to Improve Environmental Conditions Has Led to a Reduction in the Amount of Furniture with Toxic Chemicals Being Sent to Landfills', available at <https://www.weforum.org/agenda/2023/02/how-can-we-responsibly-source-post-consumer-recycled-plastic> (accessed 6th August, 2024).
- (16) NEOCON (June, 2022) 'Humanscale Released Path Chair, Humanscale Design Studio', available at <https://apac.humanscale.com/userFiles/files/Newsroom%202022-04-24-GearPatrol.pdf> (accessed 6th August, 2024).
- (17) 'Smart Energy, Clean Environment', available at <https://www.wteinternational.com>
- (18) 'Technologies for Sustainable Waste Management', available at <https://wtert.org>
- (19) 'Waste-to-Energy Technical Assistance', available at <https://www.nrel.gov/bioenergy/waste-to-energy-technical-assistance.html>