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# CLOSING THE LOOP ON OFFICE FURNITURE



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# CLOSING THE LOOP ON OFFICE FURNITURE

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Presented by: Davies Office  
40 Loudonville Road  
Albany, NY 12204

Description: The office furniture industry is an ever-changing marketplace and this changeability has produced huge amounts of unwanted furniture. Remanufacturing addresses the waste, cost, and storage that comes with replacing office furniture. This course looks at trends in the office furniture industry, the environmental impacts created by legacy furniture, and a review of the environmental and economic benefits of remanufactured furniture as an alternative to scrapping, downcycling, or discarding to landfill.

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# Purpose and Learning Objectives

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**Purpose:** The office furniture industry is an ever-changing marketplace and this changeability has produced huge amounts of unwanted furniture. Remanufacturing addresses the waste, cost, and storage that comes with replacing office furniture. This course looks at trends in the office furniture industry, the environmental impacts created by legacy furniture, and a review of the environmental and economic benefits of remanufactured furniture as an alternative to scrapping, downcycling, or discarding to landfill.


## Learning Objectives:

At the end of this program, participants will be able to:

- explain past and current trends in office furniture
- state the effect that legacy office furniture can have upon the environment
- discuss what remanufactured furniture is and how to differentiate it from as is and refurbished furniture
- recall the environmental and economic savings of remanufactured furniture vs. newly manufactured furniture, and
- explain how remanufactured furniture might facilitate acquiring LEED® certification.

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Click on title to view



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## TRENDS IN OFFICE FURNITURE

# Bullpen Offices

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The trends in office furniture have gone through many cycles and changes over the last 60 years.

The bullpen offices of the 1950s, with rows and rows of desks in grid formation, were great for managers to oversee their employees, but working in this environment and fostering interaction between office workers was difficult, and also proved to have a negative effect on productivity.





# Office Landscaping

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In the 1960s, offices were influenced by the German management consulting team Quickborner, pushing the bullpen concept out with their office layout idea called Bürolandschaft or Office Landscape.

All the old, battleship-gray steel desks were sent to the landfill to embrace the new concept. This was a great leap forward for office productivity and the worker, but a financial and environmental waste in the loss and disposal of the old furniture.



# Office Landscaping

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Office landscape designers arranged the office furniture in geometric layouts to create workgroups, with some screens and plants helping to divide the space. Furniture, such as Herman Miller's original Action Office, was developed to adapt to this new office environment. This was great for interactions between people in those workgroups.

However, noise became an issue. Even with the introduction of piped in Muzak, acoustical tiling on the ceiling, and carpeting on the floor, acoustical privacy remained a significant problem.

The open office landscape, free-standing furniture concept floundered, and the furniture was ushered out the door to make way for the new office trend: the fabric covered partition.



# The Fabric Covered Partition

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Originally, the fabric covered partition of the early 1970s was great news for the office place, bringing in improvements to the division of space and addressing the issues of visual and acoustical privacy. Arrangements of the stations in the office were based on research of each specific business in order to improve efficiencies and interactions.

The fabric covered partition created vertical planes, which allowed the hanging of work surfaces, shelves, and storage.

Flexibility was a major benefit in this design, allowing companies to easily rearrange offices around their changing functions and growth. It was great for the employees and great on the bottom line.



# The Cubicle

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From the late 1970s and 1980s to the mid-1990s, the previous solution of fabric covered partitions quickly devolved into the cubicle. “Dilbertonian” cube farms sprouted up across business America. These cookie-cutter solutions of 90-degree workstations, with panels 70 inches high, were great at managing the layout of a large company, but again, had a negative effect on the people working there. There was no natural light coming into the space, there were no outdoor views, and it was not conducive to creating impromptu and creative conversations between people in the office.

Most importantly, flexibility was lost.

The ability for furniture stations to be reconfigured into different dimensions was completely hampered by the panel’s dimensions, obsolete product versions, and faded, damaged fabrics and finishes.



# The Cubicle

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# Environmental Impacts of Trend Shifts

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As a result of these constantly shifting trends, offices began shedding their old furniture, not because it was at the end of its useful life, but because of a desire to embrace each new and more promising trend.

Companies were even disposing of product that was not completely written off yet; they often just threw functional furnishings away simply to allow them to benefit from the next new answer.

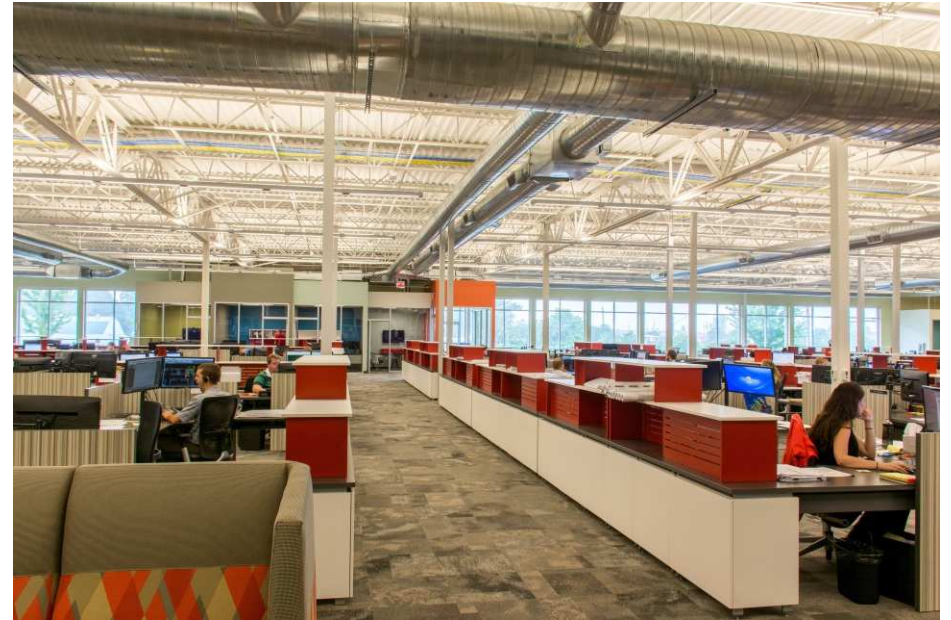


# Emerging Environmental Awareness

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During the same time period, there was an emerging public awareness of environmental negligence.

Questions on what companies were doing to the environment and what they were placing in junk yards and landfill sites were beginning to grow.



# Collaborative Office Furniture

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American tech companies of the late 1990s and 2000s were demanding products that would enable more communication and creativity. They were essentially looking for a modernized version of the Quickborner team's Bürolandschaft (Office Landscape). This interpretation of the past has been dubbed Collaborative Office Furniture.





# Collaborative Office Furniture

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In this version of office landscaping, panel heights were lowered again into benching and desking solutions.

Studies (supplied by interior designers and CFOs) indicated that Millennials (those born between 1980 to 2000) have been shaped by the use of various technologies that have changed the way that this generation interacts. This has affected their expectations for creativity and innovation in their work lives.

The studies concluded that Millennials have the extraordinary ability to multitask, even with the noise and visual distractions that are all around them, while being placed into ever smaller footprints.



# The Influence of the USGBC and LEED®

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During the late 1990s, architects and designers were also being significantly informed and influenced by the USGBC (U.S. Green Building Council) and their development of the LEED (Leadership in Energy and Environmental Design) rating system for green buildings. It became increasingly important for commercial buildings to be LEED certified in order to remain competitive for enlightened tenants.

LEED also takes into account the furnishings that go into these buildings. As a result, old furniture disposition, furniture recycled content, and panel heights to allow in more natural light were all being taken into account on projects.

Furniture manufacturers were being asked to respond with more sustainable products.



# Unintended Consequences

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As a consequence of these shifts, and a reluctance to dispose of furniture in landfills, a large quantity of well-made office furnishings of all descriptions was simply being delegated to unused backrooms and warehouses.

This was an expensive, wasteful, and somewhat misdirected practice, costing companies the expense of storage fees and lost opportunities.

It also still required the fabrication of new furniture.



# Unintended Consequences

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In many cases, the product was downcycled for scrap value or placed in dumping grounds. While recycling is better than discarding, it still requires significant resources to disassemble, reconstitute material, and then build furniture from scratch as opposed to remaking it from old furniture.



The Environmental Protection Agency (EPA) has estimated that approximately 3 million tons of office furniture and furnishings are discarded each year.

# Fiscal Impacts

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The Business and Institutional Furniture Manufacturers Association (BIFMA) estimates that, as indicated in the adjacent chart, there were \$119,475,000,000 worth of office furniture sold between 2000 and 2012. That is almost \$120 billion worth of furniture that will eventually become obsolete in meeting new furniture standards.

Systems furniture (panels, work surfaces, shelves) and storage furniture (bookcases, filing cabinets, etc.) made up approximately 35% (\$ 41,816,250,000) of the total.

| Value of US Office Furniture Market |   |
|-------------------------------------|---|
| Year                                | US Production<br>(Millions of US Dollars) |
| 2012                                | 9,270                                     |
| 2011                                | 9,375                                     |
| 2010                                | 8,300                                     |
| 2009                                | 7,845                                     |
| 2008                                | 11,160                                    |
| 2007                                | 11,420                                    |
| 2006                                | 10,820                                    |
| 2005                                | 10,070                                    |
| 2004                                | 8,935                                     |
| 2003                                | 8,505                                     |
| 2002                                | 8,890                                     |
| 2001                                | 10,975                                    |
| 2000                                | 13,285                                    |

# The Dawn of a New Industry

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Entrepreneurs saw the value of the old, unwanted stations. Instead of allowing this well-made but unfashionable furniture to go to the landfill, they diverted the product and resold the used furniture as is.

It wasn't long before clients started asking them for new fabrics and paint colors.

This spawned a new industry: office furniture refurbishing.

Small businesses sprouted up in garages and old warehouses, taking what could be considered one company's trash and turning it into a price-pointed alternative to new furniture.

Diverted from the landfill, some overbuilt systems furniture from the '70s, '80s, and '90s was being given a second life.



# Refurbishing vs. Remanufacturing

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While refurbishing is a great alternative to as is, and much better than the landfill or recycling, it still has some limitations. The alternative is remanufacturing.

While there are some parallels between refurbishing and remanufacturing, the terms are not interchangeable and the outcome or product is not the same.

Remanufacturers perform full-blown rebuilds. A refurbisher may simply spray on a coating of paint or recover a panel with new fabric. A panel, desk, or filing unit retains the same size and configuration as it has always had, making it difficult to adapt to current contexts and layouts.

A remanufacturer will strip a wall panel down to its frame and rebuild it the way the original equipment manufacturer intended.



Refurbishing



Remanufacturing



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# REMANUFACTURING OFFICE FURNITURE

## Economic and Environmental Advantages



# What Is Remanufacturing?

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Remanufacturing is a comprehensive industrial process by which a previously sold, worn, or non-functional product or module is returned to a “like-new” or “better than new” condition and warranted in performance level and quality. (Remanufacturing Industries Council)

Or put another way, it is “making of the new by the re-arranging of the old in a new way.” (Walt Disney’s Definition of Creativity, Mike Vance—Dean of Disney University)



# What Is Remanufacturing?

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Manufacturing is a linear “Take, Make, Dispose” model, which relies on the heavy use of natural resources and requires an intensive use of energy. It creates a large embodied energy footprint, CO<sub>2</sub> emissions, air and water pollution, and products that are designed for only one use before ending up in landfills or incinerators.

Remanufacturing is the rebuilding of a product to original specifications using a combination of reused, repaired, and new parts. It requires the repair or replacement of worn out parts. Remanufacturing is a form of product recovery, where a remanufactured product should match the same customer expectations as a new product.

Remanufacturing starts to close the loop. What was waste becomes input into the manufacturing process, cutting down on the raw materials and energy needed. In this process, the product, at the end of its current cycle, can be brought back to be manufactured again.



# Case Study: Cat® Reman

The Cat® Reman remanufacturing program:

- produces Cat® remanufactured parts and components at a fraction of the cost of new products
- is based on an exchange system, whereby clients return used components in exchange for remanufactured products, thus creating a circular, ongoing, economic relationship
- returns end-of-life components to same-as-new condition, reduces waste and energy, and minimizes the need for raw material to produce new parts (2+ million “cores” returned in 2010)
- remanufactures/recycles 134 million lb of material, 200,000 lb of cardboard, and 3.4 million lb of wood annually
- preserves approximately 85% of original energy “value added,” and
- approaches “zero landfill” status.

Photo by 玄史生 (Own work) [CC0], via Wikimedia Commons



# Office Furniture Remanufacturing

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Office furniture remanufacturing recognizes that this same model works well for them too. Old furniture is remanufactured to “as good as new” and sometimes “better than new” condition.

The programs are good for the client because the client gets value for old furniture in a credit that is applied to remanufactured furniture. The remanufactured furniture will meet any design vision, while saving on average 40% to 60% compared to purchasing new furniture.

The programs are good for business, because they create a circular economic relationship with clients that allows them to repurpose furniture over and over again.

The programs are good for the environment because they truly close the loop, while exemplifying the new triple bottom line of profit, people, and planet.



# Remanufacturing Benefits

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New furniture manufacturing is dependent on a process where there is energy intensive mining of raw materials that are shipped long distances, formed into cold-rolled steel, shipped long distances again, and then delivered to the manufacturer who then must transform the rolled steel into furniture.

Remanufacturers receive old furniture back from clients and repurpose it for use on their next project, thus saving hundreds of steps, energy, natural resources, and costs compared to the new furniture manufacturer.

Old product comes to the remanufacturer in a variety of heights, depths, and widths. The remanufacturer strips the product down to its core and remakes it to fit the vision of the project architects and interior designers, and the needs of the client.

The client gets furniture produced to the exact needs of the project, as opposed to an off-the-shelf product.



# Re-indexing

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The first step in the remanufacturing process is to change the dimensions, if required, of the old furniture in a process termed re-indexing. Remanufacturers have custom metal shops which take the old panels and cut them to the exact heights and the exact widths that are needed on a project.

The panels are then re-welded and constructed to the original manufacturer's specifications.

The custom metal shops can also re-index work surfaces and overhead shelves, and can even address the double post round work surfaces that are made of all steel and refit those surfaces with new locking mechanisms.

This saves the client money and adds post-consumer recycled content—valuable to projects that are trying to achieve LEED certification.



# Re-indexing

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The current office furniture trend focuses on lower panel heights to allow natural light to travel deep into an office space. This has created the need to reduce wardrobe units and lateral files to two and three drawers.

Custom metal shops can cut down and re-weld old, high wardrobe units and old four- and five-drawer lateral files to the new lower heights that are required.

These shops even allow the remanufacturers to transform three-drawer box/box/file pedestals into two-drawer mobile pedestals with a cushion, which then can be both a short-term seating solution and storage.

As a result, old furniture is repurposed for a new vision.



# Powder Coating

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Remanufacturers utilize powder coating systems to apply a dry powder to the furniture. The powder coating does not require a solvent, so there are no volatile organic compounds (VOCs). The coating is applied electrostatically and is then cured under heat to allow it to flow and form a “skin.” This creates a hard finish that is tougher and thicker than conventional spray painting, and which makes the remanufactured furniture resistant to scratches and marring.

The powder coating system allows the remanufacturer to consistently match the original manufacturer’s finishes, and to create consistent custom colors when the client wants something really different for the project.





# Powder Coating vs. Spray Painting

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Refurbishers usually use a spray paint that requires a solvent to keep the binder and filler parts in a liquid suspension form for painting. This can cause running and sagging of the paint when it is applied, and can cause differences between horizontally coated surfaces and vertically coated surfaces. In this process, the carrier fluid evaporates, emitting VOCs.

VOCs have been known to cause cancer, liver damage, kidney damage, and damage to the central nervous system.



# CNC Machines

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CNC stands for computer numerical control.

Remanufacturers have the ability to take old work surfaces, grind off the old laminate, re-index, and re-laminate to like-new standards. This is a good way for clients to receive great looking furniture at a fraction of the original furniture cost.

Remanufacturers can also offer custom work surfaces for projects. To create these custom work surfaces, the remanufacturers use CNC machines.

CNC machines allow remanufacturers to create highly precise cutting and manufacturing of the work surfaces to give their clients exactly the product and fit they are looking for.

This is a technique that even some new manufacturers have yet to implement.



# Upholstery Line

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Everyone wants their furniture to both work well and look great. Office furniture is an extension of a company's brand, and it is where a company projects its image to the employees and prospective clients. Nothing reflects that image better than the fabric that is placed on the furniture.

Remanufacturers have upholstery lines that expertly apply fabrics on panels to the same exacting standards of new furniture. These lines are rated at the same level as new manufacturers by the major textile mills and suppliers, so remanufacturers have access to the majority of the fabrics available on the market today. This allows them to supply the exact aesthetic that the client is trying to achieve.

A remanufacturer can even re-upholster remanufactured ergonomic seating with a technical knit textile. This innovative textile gives the remanufacturer the ability to apply a tailored component designed for that specific chair. Once upholstered, these chairs sit better than they did originally.



# Value-Added Services

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Remanufacturers typically include a multi-disciplinary team of experts who understand the needs of a project, help the client understand the options, apply the right products and services for the project, and see to it that the project is delivered, installed, and maintained to create an efficient and effective workspace.

Their project managers work closely with clients, architects, independent designers, commercial real estate professionals, and other project partners to develop the right workspace solution. They also work to coordinate deliveries, oversee the installation, and otherwise ensure efficiency and accuracy every step of the way.

Their space planners help clients visualize the possibilities with AutoCAD (computer assisted design) and color-coded installation drawings. They assist with selecting finishes and designing workstation layouts and custom componentry, and work directly with the architects and designers to ensure continuity.



# Value-Added Services

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## Delivery and Installation:

- Trained professionals work with the project managers to ensure that products are properly installed, work as intended, and fit accurately the first time.

## Moving and Relocation:

- Moving workstations, support walls, and work tools can be a time-consuming and challenging task. Highly professional teams create hassle-free solutions, from a detailed relocation plan to on-site supervision that assists their clients to get staff back to work on time, and to get the most out of the remanufactured furniture.





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# THE CIRCULAR ECONOMY AND SUSTAINABILITY

# The Circular Economy and Sustainable Programs

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The circular economy is a term describing an economy that is producing no waste or pollution, and which is designed to convert potential waste to raw material to produce products again and again.

Remanufacturers offer two programs that move toward the ideals of the circular economy. These innovative value-creation programs are designed to support the entire furniture ownership life cycle, ensuring that clients get the most out of their assets, whether in use or idle. These programs also ensure smooth, seamless transactions and reduced total costs.

The *sustainable product exchange program* and the *sustainable banking program* help reduce the price of redesigning a workspace by earning real value and credit for the client for existing assets. They are truly value-for-value propositions. They also ensure that the old furniture isn't scrapped, downcycled, or sent to a landfill.



# The Sustainable Product Exchange Program

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In a sustainable product exchange program, the remanufacturer puts a value on a company's old furniture. A remanufacturer will typically use today's list price for valuing this furniture, as opposed to the original price paid by the client. This offers the maximum return on an asset. That value is applied to remanufactured furniture purchased for an immediate project.

Companies leverage their existing obsolete furniture to get the exact furniture that they need (i.e., exchange high wall panels for low ones). They can also clear out furniture currently stored at exorbitant costs and/or recover space by freeing up back rooms that are filled with an unusable kit of parts.





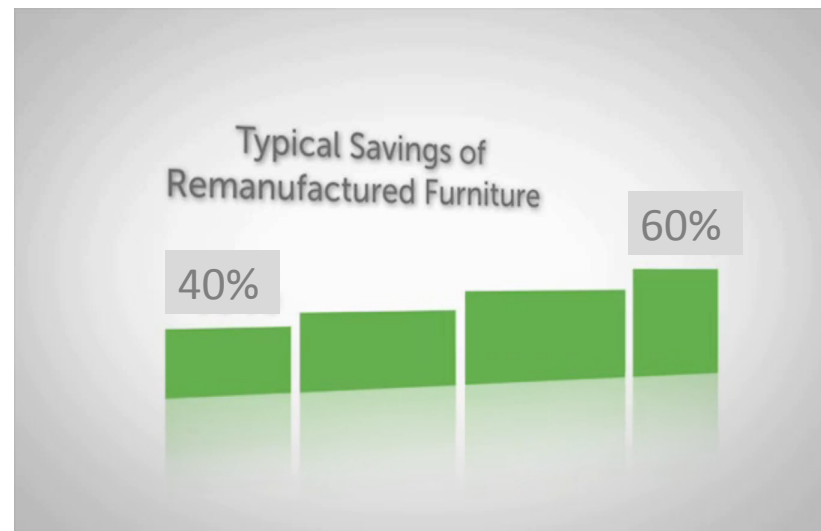
# The Sustainable Product Exchange and Banking Programs

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There is no downtime to the company. An estimate of value is agreed upon for the old furniture so that the remanufactured furniture can be made. The manufacturing lead time does not then become a factor. The company moves out of their space and right into their new environs where the remanufacturer has installed the “new” furniture. The remanufacturer then decommissions and harvests the furniture from the old space.

When companies leverage these programs, they can realize savings of up to 40–60% compared to purchasing new furniture. They can use these programs again and again to repurpose old furniture, and to meet any future design vision.

The sustainability of this process lies in its unique ability to be repeated almost endlessly.



# The Sustainable Banking Program

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The *sustainable banking program* also captures the value of customers' existing assets. This program allows a company to bank the value of furniture and to then apply the value to a future project or projects in lieu of current ones.

This program also helps empty out warehouses and storage rooms filled with furniture and parts that the client no longer needs and to bank the value of the product in a virtual warehouse for future use.

For example, one company was paying \$15,000 a month over three years to store excess furniture. The sustainable banking program allowed them to close their warehouse. The company eliminated the cost of carrying unwanted assets and earned credit toward future furniture purchases.



# Remanufactured Furniture and Verification

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Remanufacturers address the need for truly green furniture by taking old, unwanted, and dated furniture and breathing new life into it and, in essence, closing the loop. Remanufacturers can be third-party verified for energy savings, CO<sub>2</sub> savings, landfill avoidance, and raw material savings, which can then be supplied to their clients' sustainability statements.



## Advantages of the Programs

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One of the key advantages of these programs is that they offer companies the opportunity to exchange their old A-grade product brand for another A-grade product brand in the exact configuration that is needed.

If, for example, a company has changed its supplier and furniture brand, or has acquired a company that is standardized on a different furniture brand, it can exchange that acquired furniture for the brand it has standardized.

This flexibility gives a company choices that new manufacturers cannot offer. Prior to the emergence of remanufacturing, the only options available were to store old furniture, donate it at a cost, scrap it, or dump it.



Knoll

HAWORTH®

 Herman Miller

Allsteel®

The Teknion logo features the word "Teknion" in white, serif font, centered within a solid black square.

# Like-Kind Exchange Program

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Companies often depreciate their furniture costs over time. If they make a change in their office furniture needs midway through depreciation, they expose themselves to accounting headaches, costs, and penalties to accelerate the depreciation.

Remanufacturers offer a great solution when the depreciating old furniture is exchanged for remanufactured furniture.

This process is known as a like-kind exchange. By leveraging the IRS 1031 like-kind exchange policy, remanufacturing clients are able to exchange their old furniture that has not been fully written down yet, and apply the value of that product toward the furniture they need.

They continue their existing depreciation schedule for the old furniture, but also start a new depreciation for the costs of the improvements that were made to the remanufactured replacement furniture.



# Lifetime Warranties

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Because the remanufacturers' business is to take worn out products, repair them, and then build them to like-new standards, they are in a unique position to offer their customers a lifetime warranty to replace or repair the products, something that new manufacturers are not set up to do.

Remanufacturers are in this unique position because they want the client's old furniture when the client either no longer has a use for it, or has encountered changing needs.

This cycling of old furniture for remanufactured furniture supports the concept of a circular economy, which is built around the concept of waste coming back as a raw material to the manufacturer.

A blue rectangular box containing the words "Lifetime" and "Warranty" stacked vertically in a white, sans-serif font.

# BIFMA\* level® Sustainability Standards

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Remanufactured office furniture can meet the \*\*ANSI-BIFMA level® furniture sustainability standard, the new manufacturer's standard for sustainable furniture.

Remanufactured furniture that meets BIFMA level® standards:

- Steelcase: 9000, Avenir, Answer
- Herman Miller: Ethospace, AO2
- Knoll: Morrison
- Haworth: PLACES, PREMISE, UniGroup

BIFMA level® certified furniture is also eligible for the USGBC LEED Pilot-Credits PC80: Environmentally preferable interior finishes and furnishings.

The BIFMA level® certification program is included on the EPA's recommended specifications, standards, and ecolabels for federal furniture purchasing. This level® is now approved for use by federal purchasers meeting the President Obama's executive order 13693, which requires that 95% of all federal purchasing be environmentally preferable products and services.



\* Business and Institutional Furniture  
Manufacturers (not-for-profit trade)  
Association

\*\* American National Standards Institute

# RIT Findings

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The National Center for Remanufacturing and Resource Recovery at Rochester Institute of Technology (RIT) conducted a comprehensive study of an office furniture remanufacturer and concluded the following:

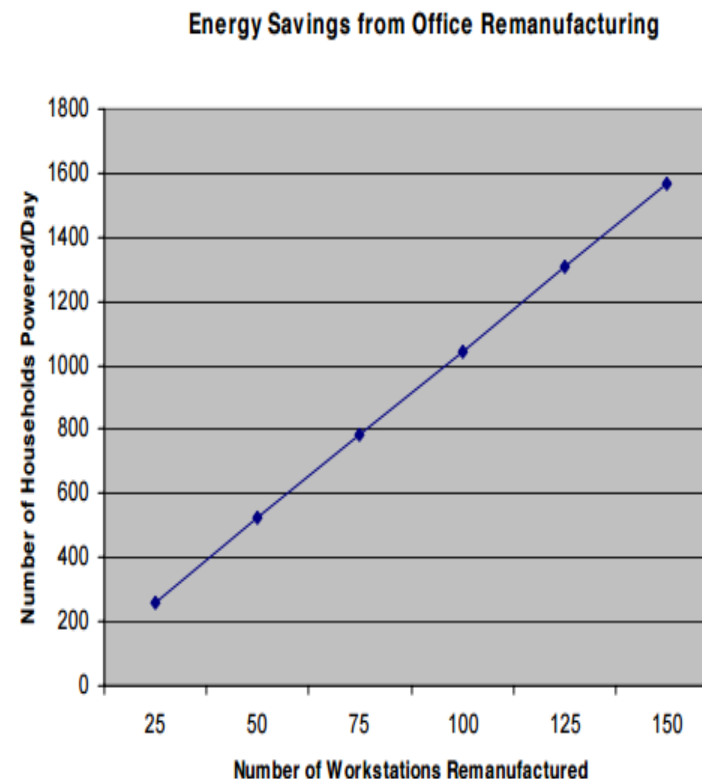
- Remanufacturers reuse over 98% of each panel by weight.
- Remanufacturers use an estimated 111 fewer manufacturing steps to produce an office panel than new office furniture manufacturers do.





# RIT Findings: Energy Savings

- The energy savings from remanufacturing one office workstation (five panels) could power 10 average American households for one day.
- The energy saved by remanufacturing 100 workstations compared to manufacturing them could power three households for a year.
- Every year, remanufacturing office panels alone resulted in energy savings that could power 342 average U.S. households for one year.

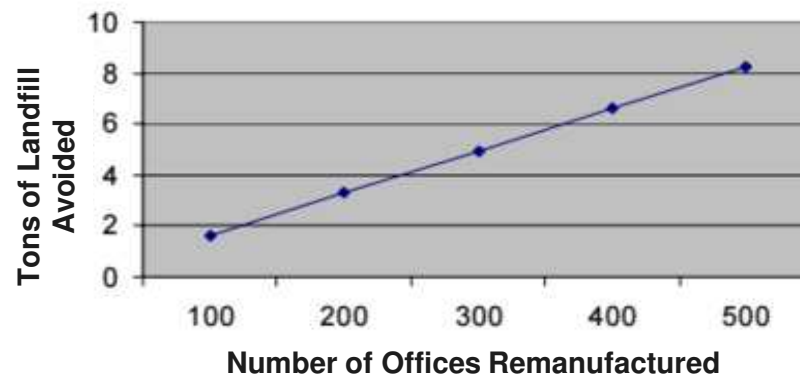


# RIT Findings: Environmental Benefits

- One year of office panel remanufacturing conserves approximately 8.5 million pounds of raw materials.
- One year of office panel remanufacturing prevents the release of more than 6.9 million pounds of CO<sub>2</sub> into the environment.

Such measured data gives remanufacturers the ability to supply third-party verified numbers on the energy savings, CO<sub>2</sub> savings, landfill avoidance, and raw material savings that can then be applied to their clients' sustainability statements.

### Avoided Waste to Landfill



# Overview: LEED® Certification

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The U.S. Green Building Council (USGBC) is a 501(c)(3) non-profit organization composed of leaders from every sector of the building industry working to promote buildings and communities that are environmentally responsible, profitable, and healthy places to live and work. USGBC developed the LEED (Leadership in Energy and Environmental Design) green building certification program, the nationally accepted benchmark for the design, construction, and operation of high performance green buildings.

LEED credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. Therefore, products that meet the LEED performance criteria can only contribute toward earning points needed for LEED certification; they cannot earn points individually toward LEED certification.

For detailed information about the council, their principles and programs, please visit [www.usgbc.org](http://www.usgbc.org).



# LEED USGBC Points v2009

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**MRc 3.2:** Remanufacturers enable clients to obtain credit with MRc 3.2 if 30% or more of the total furniture and furnishings budget is used on salvaged, refurbished, or used furniture and furnishings.

**MRc 4:** Remanufacturers also aid with MRc 4 in the use of recycled content in the materials, furniture, and furnishings in the project. One point is available for 10% recycled content on the total project, and another point is available for 20% on the total project. Remanufactured products contain a large amount of post-consumer content, sometimes averaging in the mid-60s to 70% content.

**MRc 5:** Option 1: When the remanufacturing facility is within 500 miles of the project site, one point is available. One more point is available where 20% of the combined value of construction and Division 12 (furniture) materials and products are remanufactured within a radius of 500 miles of the site.

**MRc 5:** Option 2: If 10% of the value of the construction and Division 12 (furniture) materials and products are extracted, harvested, or recovered within 500 miles of the project, one point is available. Remanufacturers can use furniture that is recovered from within 500 miles of the project. The remanufacturer should supply a signed letter in regards to the exact origins of the recovered furniture.

**MRc 2:** Construction Waste: If existing onsite furniture is sent to the remanufacturer for banking or exchange, it is being diverted from landfill and counts toward construction waste diversion.

# LEED USGBC Points v4

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To establish a higher standard for the built environment, the USGBC will be using LEED v4 for all projects registered after October 31, 2016. Remanufactured furniture excels in this new standard. USGBC LEED v4 has seven goals:

1. To reverse contribution to global climate change
2. To enhance individual human health and well-being
3. To protect and restore water resources
4. To protect and enhance biodiversity and ecosystem services
5. To promote sustainable and regenerative material cycles
6. To build a greener economy
7. To enhance social equity, environmental justice, community health, and quality of life

The circular economic business model of remanufacturing aligns itself perfectly to meet these goals.

The new version has a strong focus on materials and resources. This focus offers particular opportunities for credits for remanufactured furniture customers.

# LEED USGBC Points v4

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## **Prerequisite expanded: Construction and demolition waste management planning**

Furniture that is being sent to the remanufacturer can be used in this calculation.

## **MR Credit: Interiors life cycle impact reduction**

This credit focuses on reuse of materials.

Option 2: Furniture reuse: Remanufactured furniture applies directly to this credit.

Option 3: Design for flexibility: The lifetime warranty that remanufacturers offer means that long-term reuse and recycling of the furniture lends itself to this credit.

## **MR Credit: Building product disclosure and optimization—environmental product declarations**

This credit focuses on transparency in environmental life cycle impacts and selecting products with improved life cycles.

Option 1: Remanufacturers can help with this credit when they have EPDs that meet one of several criteria, such as LCA, (Life Cycle Assessment) cradle to cradle.

Option 2: Remanufacturers can help with this credit when they have been third-party certified that their product is below the industry standard in three of six categories, such as reduction of greenhouse gases, depletion of stratospheric ozone layer, and acidification of land and water resources.

# LEED USGBC Points v4

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## **MR Credit: Building product disclosure and optimization—sourcing of raw materials**

This credit focuses on transparency in raw material sourcing and selecting materials that have been appropriately sourced. Option 2: Remanufacturers can help their clients here because, when they offer extended producer responsibility programs such as a closed-loop program, that puts the product back into the production stream. Remanufactured products also help clients meet the criteria of post-consumer recycled content.

## **MR Credit: Construction and demolition waste management**

This credit focuses on waste reduction strategy.

Option1: Diversion: Remanufacturers can help their clients meet these credits, since furniture that is on a site that is being renovated can be calculated because it is being sent to the remanufacturer, diverting it from a landfill.

## **USGBC LEED Pilot-Credits PC80: Environmentally preferable interior finishes and furnishings**

This credit focuses on the BIFMA level<sup>®</sup> Sustainability Standard.

Remanufacturers that have products that are level<sup>®</sup> certified can help their clients achieve this credit.



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## CASE STUDIES



# Bank of America

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More than 20 years ago, the Bank of America was looking for a way to derive value from their existing furniture, as well as for a cost-effective alternative to buying new. The company's large installed base of aging, "A-grade" systems furniture was in need of a facelift.



# Bank of America: Solution

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The remanufacturer innovated a three-step program to meet Bank of America's needs:

1. Remanufacture the client's existing surplus assets
2. Apply trade-in/exchange credit for said surplus
3. Deliver like-new remanufactured furniture from inventory to supplement the client's needs

In addition, they provided turnkey services including design, project management, delivery, and installation.



# Bank of America: Results

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Remanufacturing saved the bank between 30% and 50% in costs by remanufacturing their existing assets instead of buying new.

This was a significant boost to the bottom line.

As a result, the client requested the remanufacturer to enter into a formal service contract agreement in 1994 that has not only remained in place ever since, but which has also been expanded to include nationwide service coverage.



# Computer Sciences Corporation

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Computer Sciences Corporation (CSC), a leader in technology-based solutions and services to a global clientele, was having problems with asset management. The company was paying for nationwide warehouse storage of their systems furniture and struggling to manage these existing assets effectively.



# Computer Sciences Corporation: Solution

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To help CSC reduce storage costs and benefit from the value of their surplus furniture, the remanufacturer recommended the sustainable banking and product exchange programs.

As described previously, these programs give businesses with surplus office furniture credit toward purchases of used, refurbished, or new office furniture.

CSC simply deposited its unused furniture (eliminating their storage and inventory costs) and, in return, received credit toward like-new product at a premium discount to support reconfiguration and expansion of their offices nationwide.



# Computer Sciences Corporation: Results

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- Savings of \$1,500,000 per year for warehousing and an additional \$700,000 savings in warehouse management
- Energy savings enough to power 3,172 average American households for one day
- Savings of \$40,000 per year for furniture inventory and redeployment
- 346,822 lb of waste material diverted from landfills
- 1,005,784 lb of raw material conserved
- CO<sub>2</sub> reduction of 211,284 lb



# Save the Children

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Save the Children, an organization that helps children in the United States and in 120 countries around the world, was hit hard by 2012's Hurricane Sandy. The powerful storm badly damaged the organization's Westport, CT headquarters, giving the organization little choice but to sell their building and find new headquarters. These new headquarters gave the organization the opportunity to introduce an open floor plan and to find furniture to accommodate that arrangement. As such, Save the Children turned to a remanufacturer for its efficient, low-cost office furniture services and solutions.



# Save the Children: Solution

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Save the Children considered several furniture company solutions, but when a remanufacturer presented them a mockup of an alternate solution composed of remanufactured furniture in one week, and guaranteed installation within the organization's extremely tight timeframe, they knew remanufacturing was the right choice for the job.

Working 12-hour shifts over four weeks, the remanufacturer's crews completed installation of more than 350 workstations on two floors, even in the midst of office construction and employee move-in.

In addition to workstations, installation included conference room and lounge furniture, as well as furnishings for private offices, filing rooms, and a break room.





# Save the Children: Results

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- \$500,000 in savings on direct furniture costs, allowing more money to go to programs for children
- Saved enough energy to power 3,500 American houses for one day
- Prevented 96,000 lb of landfill waste
- Reduced CO<sub>2</sub> emissions by 246,750 lb
- Conserved 280,000 lb of raw materials/natural resources



# Colgate

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Fortune 500 consumer products giant Colgate-Palmolive (Colgate) had an ambitious plan for a new workspace. It involved sourcing highly customized brand name furniture and providing value for their existing assets, as well as meeting an aggressive timeline. Remanufacturing proved to be the only way of getting the job done.

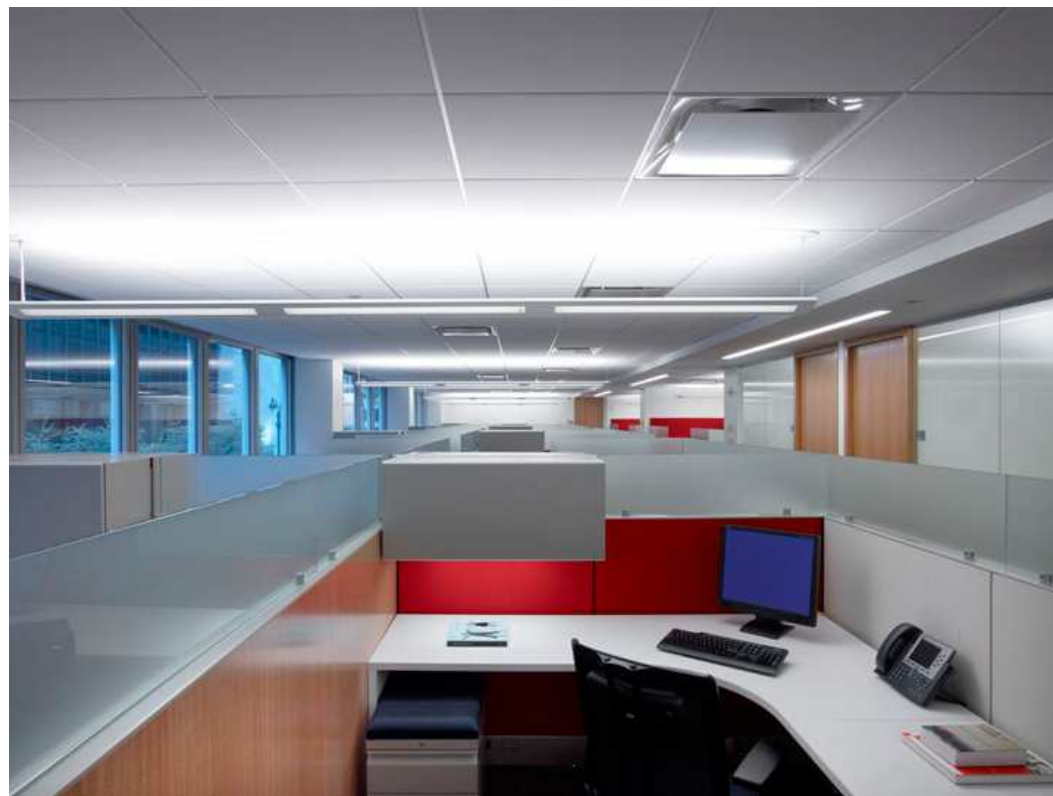


# Colgate: Solution

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The remanufacturer was able to custom design and modify product to meet Colgate's unique needs by accessing the quality and quantity of materials required to complete the project on schedule, and working closely with the client's architect to achieve a stunning, one-of-a-kind look.

The on-site and off-site project management team ensured that everything went smoothly. Colgate was also able to defray the cost of the build-out by depositing their former assets into sustainable product exchange and banking programs, and no less important, keep their surplus out of the waste stream.



# Colgate: Results

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The remanufacturer succeeded at a task that no other vendor could even undertake.

Their cost was 13% less than the lowest bidder.



# US Assure

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US Assure, a leading property and casualty insurance provider located in Jacksonville, FL needed to furnish 44,000 square feet of new office space in the most affordable manner possible, while creating a workspace that was functional, inspired, and ultimately, modern. They were initially determined to buy new, as they did not believe that remanufactured furniture could meet their needs, but a remanufacturer demonstrated to them that this was not the case.



# US Assure: Solution

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Through a flexible sustainable product exchange program, the remanufacturer was able to decommission US Assure's old furniture at a savings that could be applied to a "new" solution in the form of remanufactured products.

The remanufacturer then custom-engineered and remanufactured 146 workstations according to the client's unique specifications.

This not only supported the way the company wanted to work, but also achieved the state-of-the-art look and feel the client had imagined.



# US Assure: Results

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The combination of the remanufacturer's creativity, flexibility, and custom capabilities rendered the perfect solution for US Assure.

This was not only a sustainable solution, but it also energized the staff and represented more than \$150,000 in savings over buying new.





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## SUMMARY



# Summary

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There have always been ever-revolving cycles in the way we work in the office place, and probably always will be.

Remanufacturing furniture is an effective method to manage legacy furniture assets in this ever-changing environment.

Remanufactured furniture is an economical choice for new floor plans, downsizing or upsizing situations, and/or to integrate modern technology into decades-old workstations.

Remanufacturing is the most sustainable choice to close the loop on office furniture and give office furniture another life while improving the bottom line.

Remanufactured furniture can help achieve or improve LEED certification levels.

Remanufacturing is a win, win, win solution, one which improves the triple bottom line of people, planet, and profit.

# Conclusion

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