



*We believe in a world
where discarded
materials are used as
resources rather than
wasted.*

schott design

schottXchange

The background of the bottom half of the image is a composite. The left side shows a large pile of discarded plastic bottles and containers, representing waste. The right side shows a yellow industrial machine, possibly a conveyor or sorting system, with a metal grate in the foreground. The 'schottXchange' logo is overlaid across the center, with 'schott' in green, 'X' in white, and 'change' in white.



Brandie Townsend

Senior Consultant

(912) 856-5662

btownsend@gbbinc.com



Pamela Francis

Vice President

(317) 762-7834

pfrancis@schottdesign.com



AGENDA

How Architects and Project Partners Can Drive Reuse by Designing for Deconstruction

- ✓ Design for the future remodel & redesign not for demolition
- ✓ As Built vs BIM/AR
- ✓ SchottXchange
- ✓ Case Study
- ✓ Q & A



Our Story

o o o

GBB is an international solid waste management consulting firm that helps public- and private-sector organizations craft practical, customized and technically sound solutions for complex solid waste management challenges.

Since 1980, GBB has been a trusted resource at the forefront of the industry, creating success stories that integrate smart planning with effective management of solid waste services. Our staff enables our clients to do more with less.





Our Mission



We help our clients solve solid waste management issues by providing innovative, responsible, sustainable, and economical strategies and solutions for the benefit of communities and the environment.

GBB's Comprehensive Services



GET CREATIVE TO SAVE THE COMMODITIES

The fundamentals (3R's) are still relevant today:

- **REDUCE** waste from the beginning of design or redesign
 - The idea that we must demolish and rebuild every 5 to 10 years is wasteful. How can we minimize our footprint?
- **REUSE:** When we go through these refreshes, it's ever important to avoid using virgin materials.
 - Furniture banking or exchanges like the Lifecycle Building Center and SchottXchange are ideal options for the circulation of well-made materials.
- **RECYCLE:** The focus. Current condition and we as designers need specify to divert as much building materials as possible now.
 - Keep in mind the priorities: *big vs. small, heavy vs. light and valuable vs. costly to dispose...*



“The Most Sustainable Building is One that is already Built”

Reduce . Reuse . Recycle

- ✓ Reduce construction waste
- ✓ Reuse materials already slated for demolition
- ✓ Recycle: PAPER, METAL, PLASTIC strong and striving to rise.

Protect . Preserve . Profit

- ✓ Kent Sustainable Business Park – Domestic manufacturing
- ✓ Savannah, GA – historical buildings renovated for a modern campus
- ✓ Engineering company relationships (BIM)

Deconstruct over Demolish

- ✓ U.S. Department of Energy's Bioenergy Technologies Office
- ✓ EPA via Eastern Research Group

Kent Sustainable Business Park

In the wake of China's National Sword Policy implementation (among others), there is a renewed interest in redesign our domestic facilities to manage ALL of waste that we generate to **protect our natural resources.**



2020

REDUCE LANDFILL WASTE
20% by 2020 | 90% by 2030

2030

Kent County, Michigan

Land originally slated
for a new landfill cell
will be used instead for a
Sustainable Business Park
in West Michigan



Savannah Georgia & SCAD

They impacted the future of the city landscape with the preservation of buildings rather than demolishing. They protected their existing plateau of structures and profited from their true educational profits.

This model exemplifies the idea of deconstructivism. Can serve as an example for elsewhere.



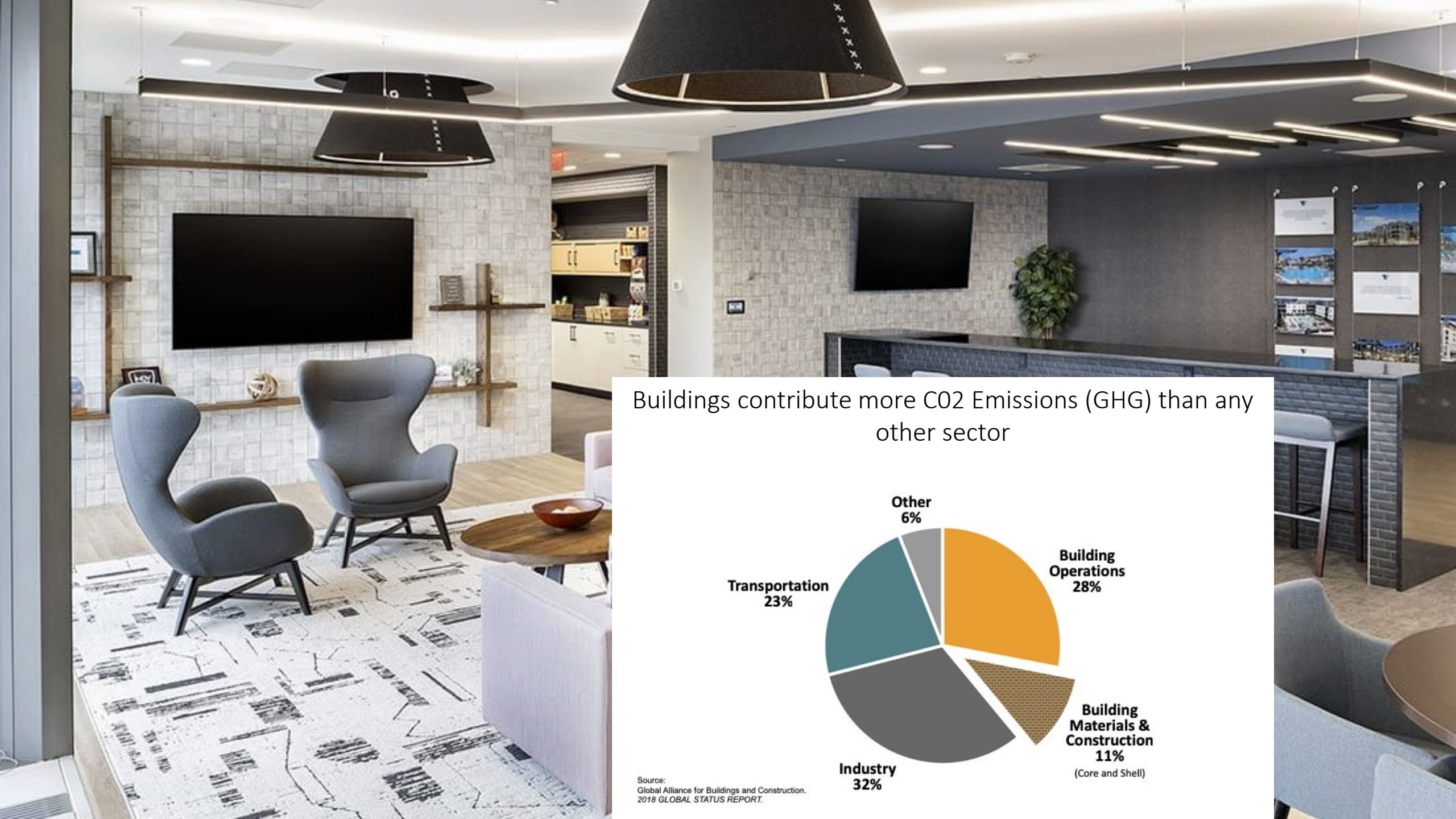
Engineering & Design

Engineer and design your buildings with the protection of resources in mind. Preserve all you can the buildings that are already built. Lends itself to cost saving if we design for deconstruction rather than demolition.

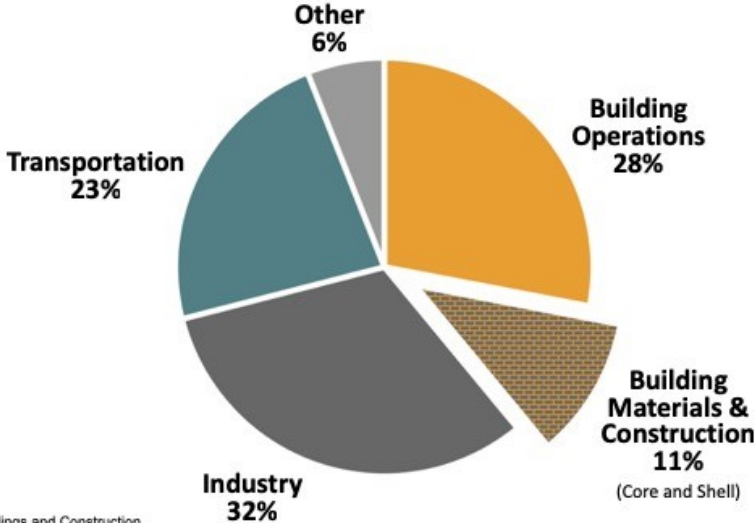
With the help of BIM there are better opportunities to verify and “mine” buildings before remodeling and refreshes.



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Buildings contribute more CO2 Emissions (GHG) than any other sector



Source:
Global Alliance for Buildings and Construction.
2018 GLOBAL STATUS REPORT.



Our industry's addition to Disposal

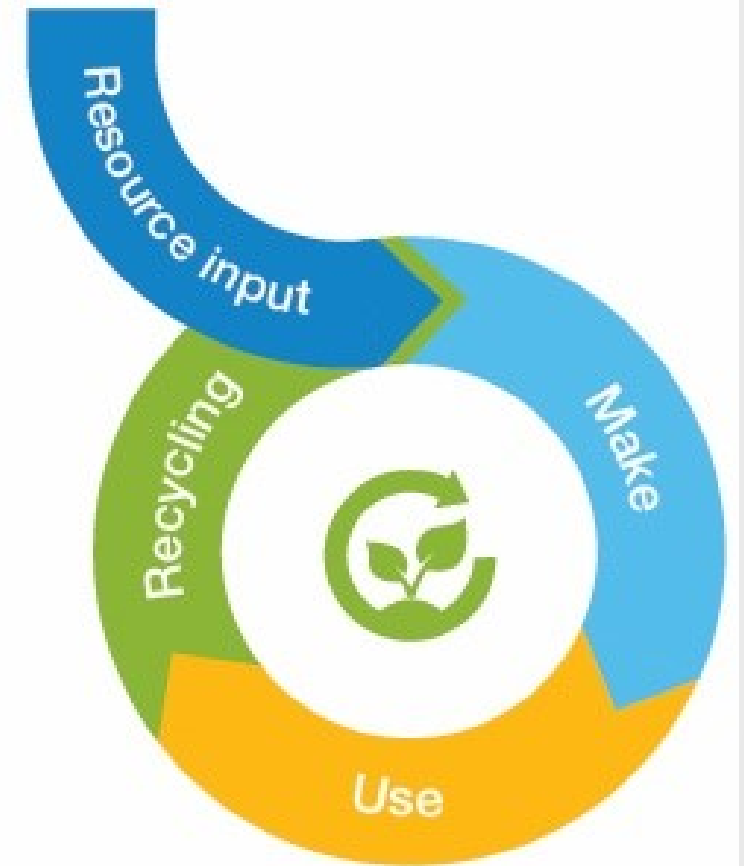
The C&D industry is largest contributor
to Landfills in America – 548 million tons,
more than 2X that of
Municipal Solid Waste (MSW)



Global Projection to add equivalent Sq. Ft. of NYC, every month,
for the next 40+ years.

Circular Economy

Linear Economy



Circular Economy

COMMUNITY

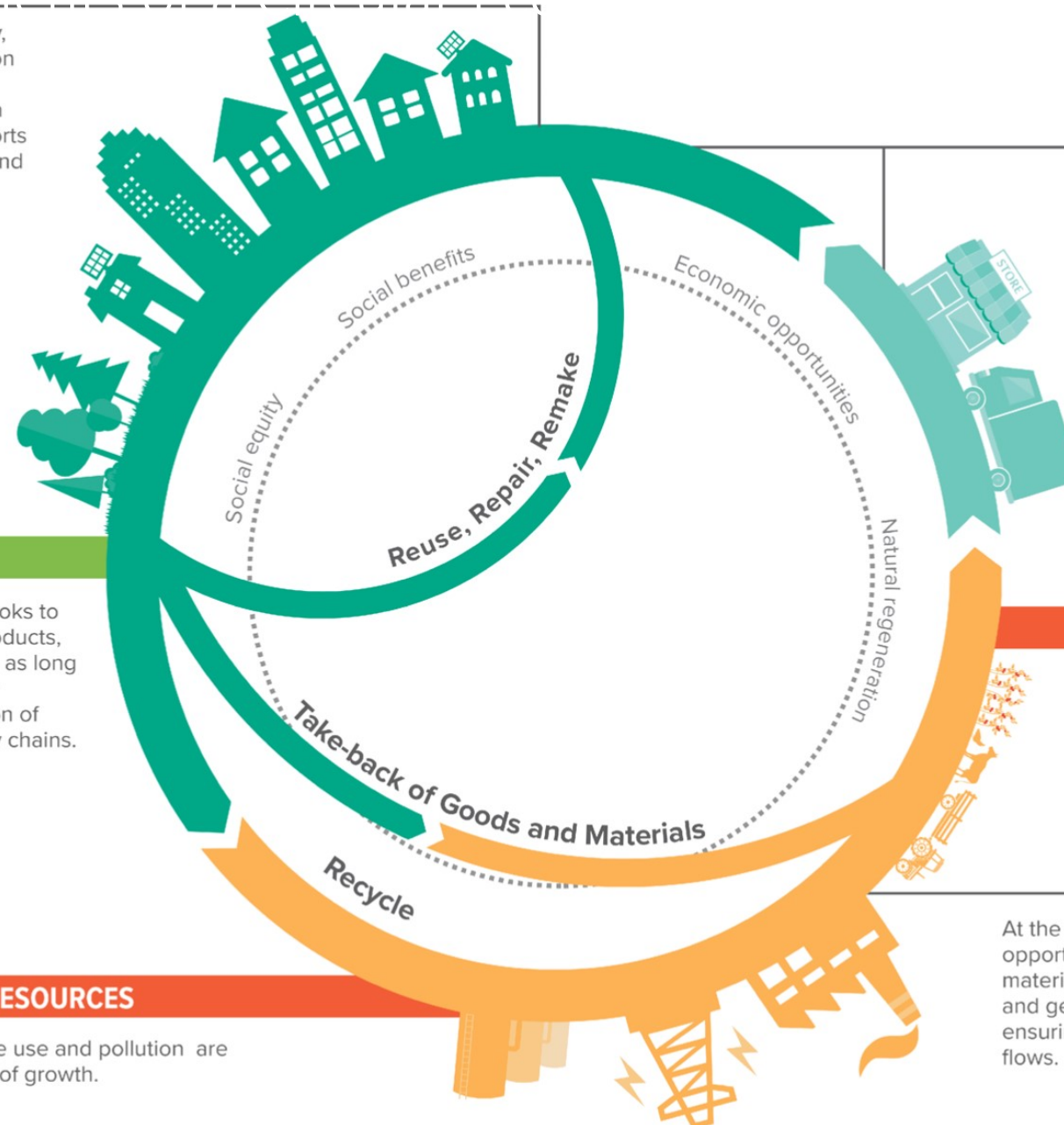
The principles of equality, solidarity, and cooperation between residents and business owners through community design supports increased social equity and local economic development.



The Circular Economy looks to maintain the value of products, materials, and resources as long as possible, including by minimizing the generation of waste throughout supply chains.



The rates of raw resource use and pollution are decoupled from the rate of growth.



MARKET

Customer preferences are shifting demand toward more resource-efficient and sustainable products that are more durable, repairable and recyclable.



Resource losses are partly recoverable through symbiosis between businesses and organizations.

MANUFACTURING

At the production stage, there are opportunities to use fewer raw materials, consume less energy, and generate less waste by ensuring more sustainable material flows.



Design Professionals
are in the Driver's Seat



schott  change

DECONSTRUCT

Take apart an existing building, element by element, in reverse order of its construction, to preserve or recycle as many materials as possible.

- Reduced toxic dust
- Reduced heavy metal leaching into soil
- Reduced waste to landfills
- Reduced consumption of new material



RECYCLE

- Collaborate with Trash Haulers / Construction Firms
- Expect push back – Change takes Time
- Develop programs with Manufacturers
 - Reach out to partners to form circular economies wherever possible.
 - Define processes around take back programs



CO₂e Impact:

- 10,000 SF Space
 - @183,500 kg CO₂e
 - Recycled 9,500 SF carpet
-

28,281 kg CO₂e
Carbon Emissions



3,196 gallons of gas



31,109 pounds coal burned



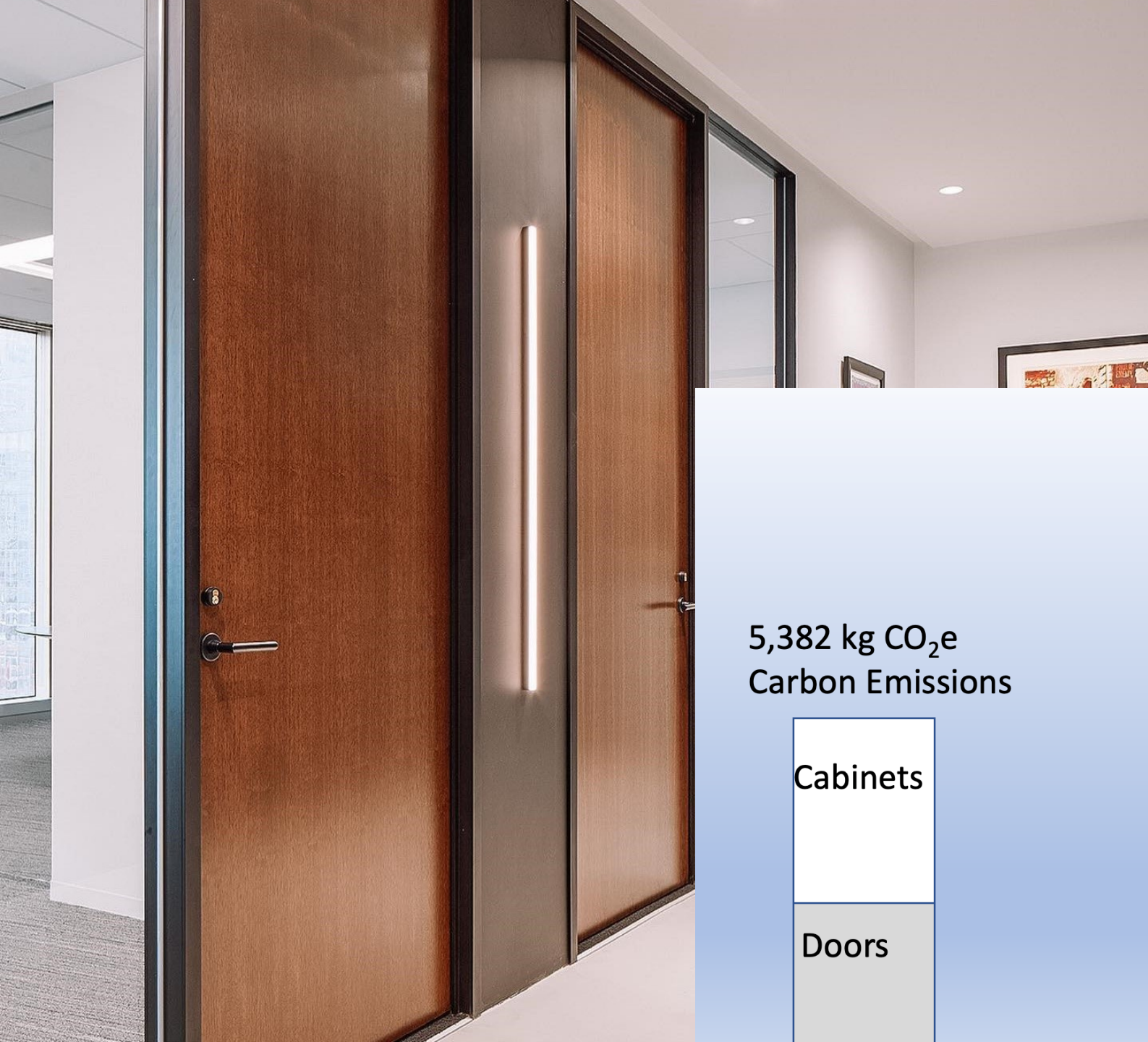
70,703 miles driven

Reduce & Reuse



- **Reduce:** Consider what is actually needed and use what exists when you can
- **Renew:** Maximize product life, reduce cost and timeline.
 - Encourage Buildings / large clients to store onsite
 - Look for external renew programs in your area





CO₂e Impact:

10,000 SF Space

@183,500 kg CO₂e

Reused 30 doors & 60 cabinets

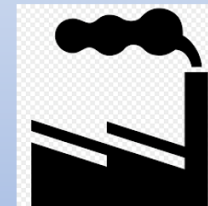
5,382 kg CO₂e
Carbon Emissions

Cabinets

Doors



611 gallons of gas



5,950 pounds coal burned

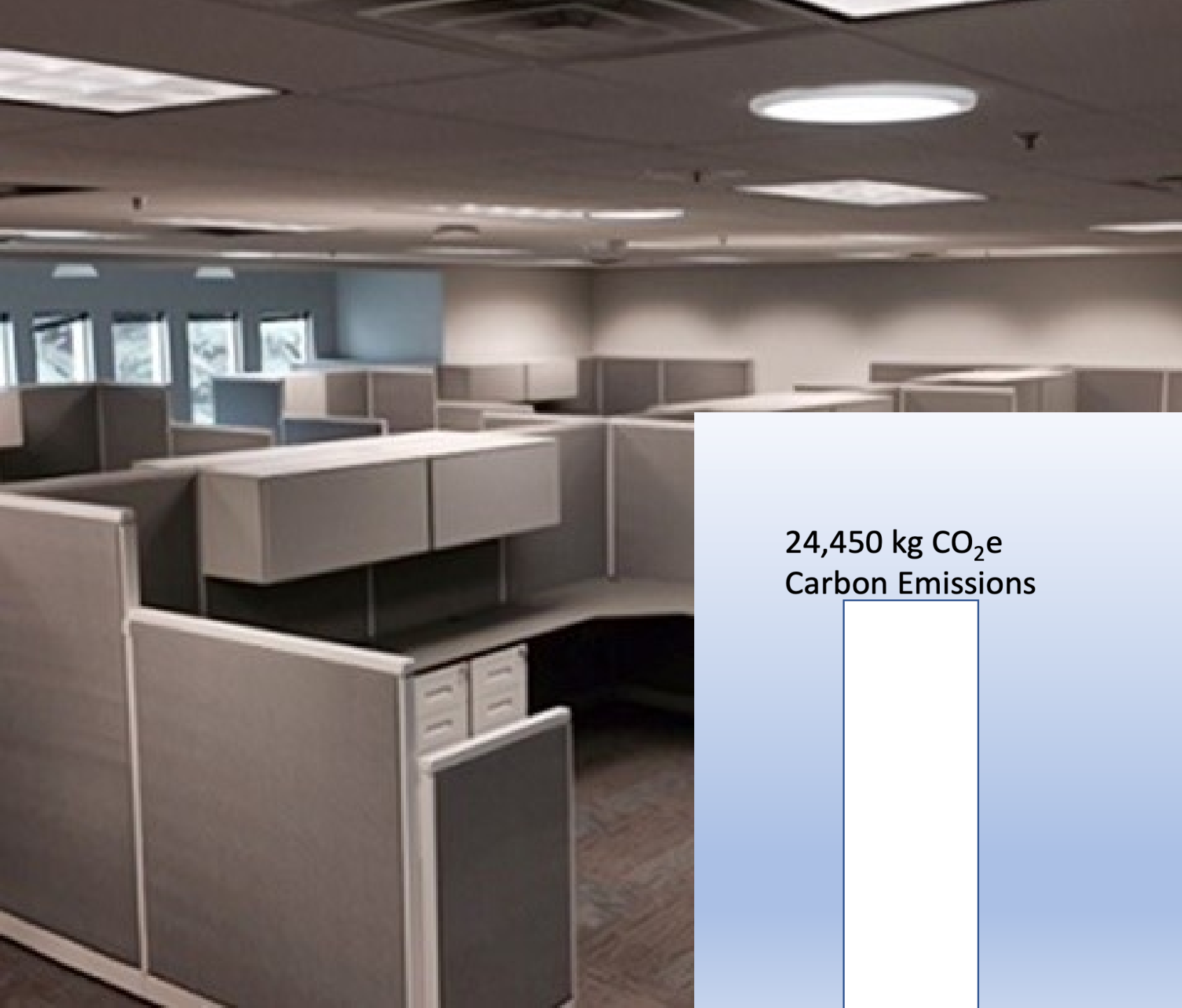


13,523 miles driven

Donation

- Aids in waste diversion
- keeps product out of landfills / incinerators and prevents the next owner from manufacturing a new product.
- Helps someone else who needs that item
- Saves on tipping fees





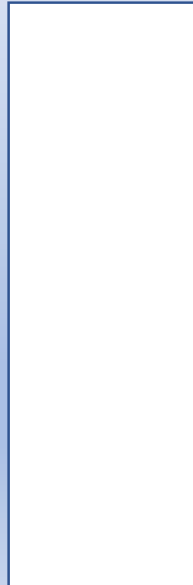
CO₂e Impact:

10,000 SF Space

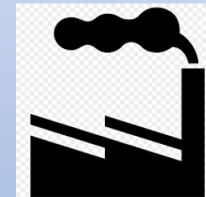
@183,500 kg CO₂e

Donated 50 workstations

24,450 kg CO₂e
Carbon Emissions



2,763 gallons of gas



26,895 pounds coal burned



61,725 miles driven



CO₂e Impact:

Reduction compared to the
average 10,000 SF Space
32 % + Reduction

58,141 kg CO₂e
Carbon Emissions



6,570 gallons of gas



63,955 pounds of coal burned



145,352 miles driven



Rethink Product Selection – Educate yourself

Consider CO2 emissions from Manufacturing to End of life

Consider health impacts of all building materials

Prioritize products made in a closed loop

Communicate this higher standard to your manufactures to help bring change

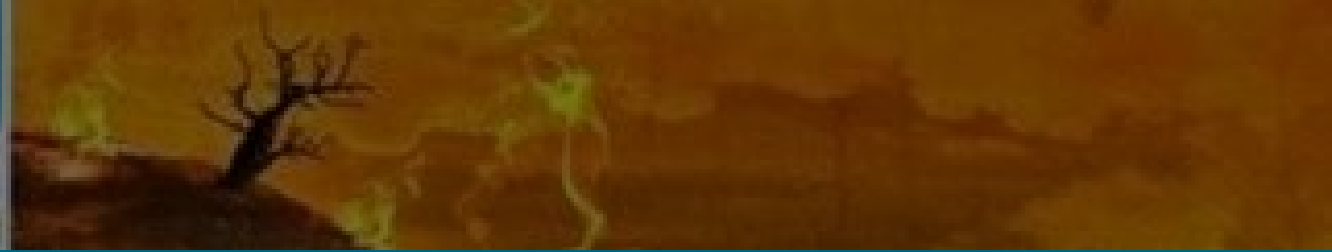
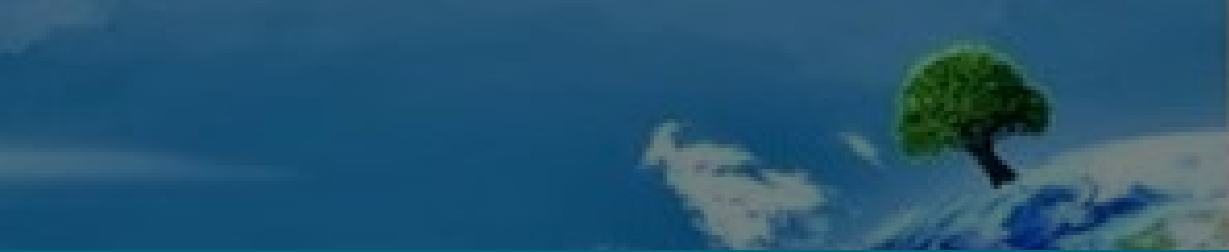
Avoid products with no end-of-life solution – avoid perpetuating the problem

Extended Producer Responsibility – Expect more



Our Responsibility

- Acknowledge your responsibility as part of the solution
- Educate yourself
- Lean into uncomfortable discussions
- Listen to understand
- Collaborate to create solutions
- Act
- Lead



- *“People tell me I should study to become a climate scientist so I can solve the climate crisis. But the **climate crisis has already been solved**. We already have all the facts and solutions.*
- *All we have to do is wake up and change.”*

- Greta Thunberg



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A large pile of construction materials, including lumber, window frames, and bricks, with the text "Q&A" overlaid in the center.

Q&A