

# **The circular economy beneath your feet.**

Take ownership of your  
plastic flooring footprint.

## **An Interface white paper.**

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# Executive Summary

Colleges and universities around the world are committed to sustainability, climate change action and carbon footprint reduction. A vast majority of universities in the U.S. have publicly stated sustainability goals in some form, and there are strong coalitions in place to measure and reward high-performing sustainability leaders in higher education.

However, many of these same colleges and universities overlook two of the largest and most obvious environmental opportunities they have. The first is that they only account for their direct operational carbon footprint and fail to realize the often larger impact of the embodied carbon hidden within the materials and goods procured throughout their supply chain. Additionally, they let the often-largest amount of plastic they purchase – flooring – routinely find its way to the local landfill.

By acknowledging and addressing the embodied carbon within a university’s portfolio of purchased products, the opportunity exists to create a carbon neutral supply chain. And, in certain use cases – such as with flooring – the opportunity exists to not only create a carbon neutral supply chain, but also a circular economic model, where waste actually becomes food (new raw material) to be used over and over again.

By optimizing existing business processes and taking a sharp look at campus-wide flooring standards for both new construction and renovation based on metrics that matter – such as carbon emissions, solid waste and recycled content material – universities can move one of the largest components of the facilities supply chain, and the largest amount of plastic on campus – flooring – to a position of measurable sustainability.



# Sustainability in Higher Education

In 2006, twelve (12) college and university presidents initiated the American College & University Presidents' Climate Commitment (ACUPCC), determined by a shared belief that higher education should serve as a leading economic example on climate and sustainability action for the sake of both their students and society at large.

By Earth Day 2008, the ACUPCC was a national initiative with signatories in all 50 states and the District of Columbia<sup>1</sup>. Today, ACUPCC includes 598 institutions of higher education who have publicly announced a Carbon Commitment (focused on reducing greenhouse gas emissions), a Resilience Commitment (focused on climate adaptation and building community capacity) or a Climate Commitment that integrates both.

Many universities function as centers for innovation, research, experimentation and funding for advancements in sustainability. Universities around the world have joined the Association for the Advancement of Sustainability in Higher Education (AASHE), where the Sustainability Tracking, Assessment & Rating System (STARS) program provides a transparent self-reporting framework for colleges and universities to measure their sustainability performance<sup>2</sup>. STARS participants submit sustainability data in 23 operational categories to earn a Bronze, Silver, Gold or Platinum rating, or recognition as a STARS Reporter in categories across academics, engagement, operations, planning and administration. As of July 1, 2017, there were 934 STARS participants in 34 countries. All reports are publicly accessible at [stars.aashe.org](https://stars.aashe.org).

Through commitments like the ACUPCC, and through organizations like AASHE, higher education has become a leader in committing to the scientifically necessary goal of climate neutrality and waste reduction. Meeting the economic and cultural challenges of the present while operating with respect towards the health and longevity of our resources in the future is one of the greatest challenges of our time, and higher education has been a model for other sectors in setting and achieving sustainability goals.

Yet, for all of the sustainability advances higher education has made, significant low-hanging opportunities to further improve sustainability remain.

Without realizing it, universities allow their supply chains to deliver and install embodied carbon-intensive materials (flooring, windows, furniture, insulation) to the campus without accounting for the environmental impact of these materials in campus sustainability metrics. This hidden carbon footprint is significantly undercutting the stated sustainability goals of many universities around the world. Though harder to fully account for, the carbon footprint of the university supply chain is an ecologically damaging component in the university's carbon footprint.

They do a great job in retail recycling – like saving aluminum cans and plastic bottles – but wholesale material recycling remains a challenge. The reduction of supply chain carbon requires the university to fully understand the concept of Scope 3 emissions (defined and explained ahead), the difference between operational and embodied carbon and the potential impact it could have on the university's publicly stated sustainability goals.

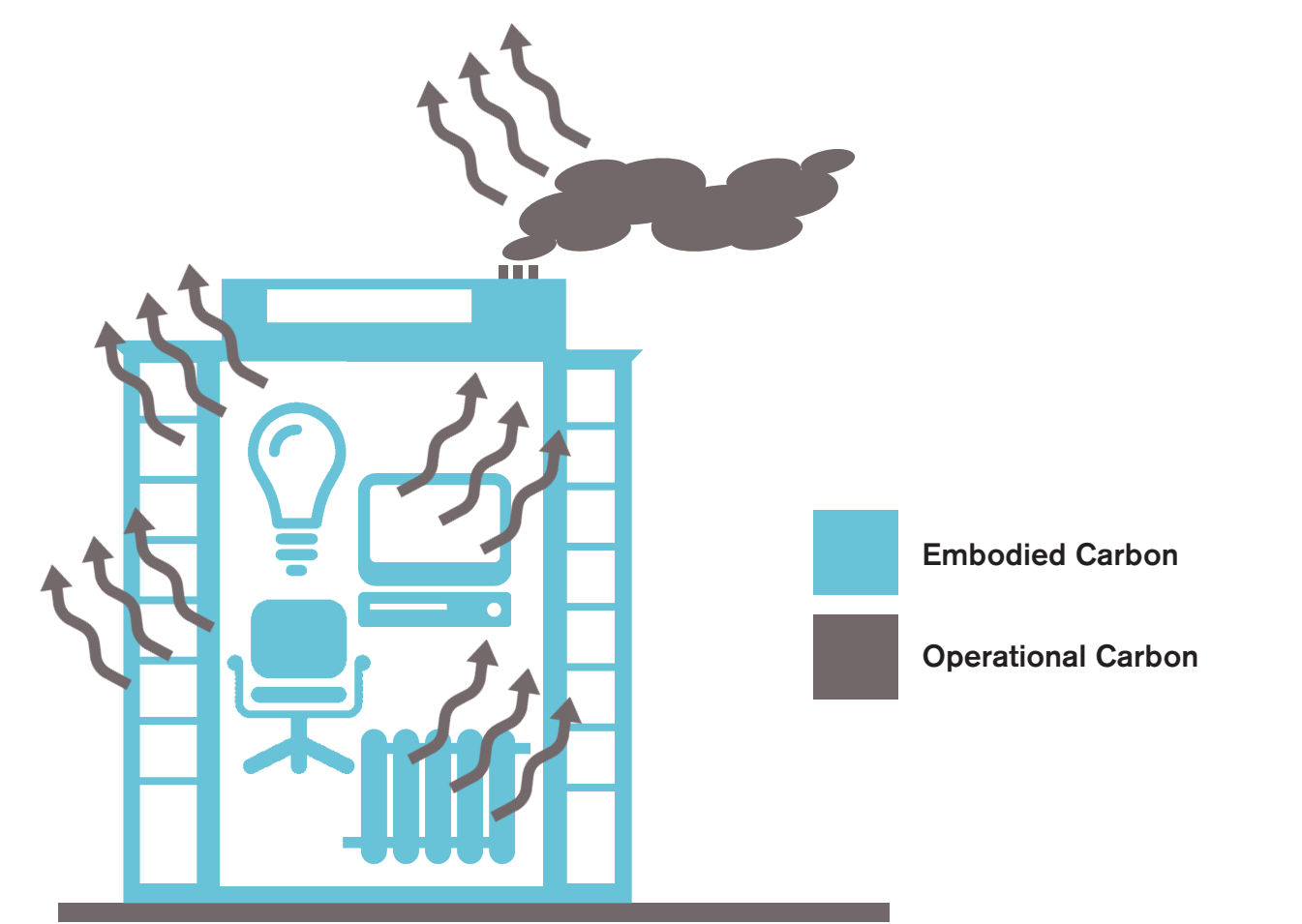
# Operational Versus Embodied Carbon

When measuring the sustainability of a university, it is standard practice to follow the guidelines set forth in the GHG Protocol, a corporate emissions measurement standard that classifies all of a company's (or university's) GHG emissions into one of three scopes<sup>3</sup>.

Scope 1 emissions are defined by the GHG Protocol as “those direct emissions from owned or controlled sources<sup>3</sup>,” such as the emissions from buses operating on a university campus.

Scope 2 emissions are defined as the “indirect emissions from the generation of purchased energy<sup>3</sup>,” which includes all of the power consumed by university buildings and tenants.

Scope 3 emissions are defined as “all indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions<sup>3</sup>,” or more directly, the carbon consumed in the direct production of a university's supply chain.

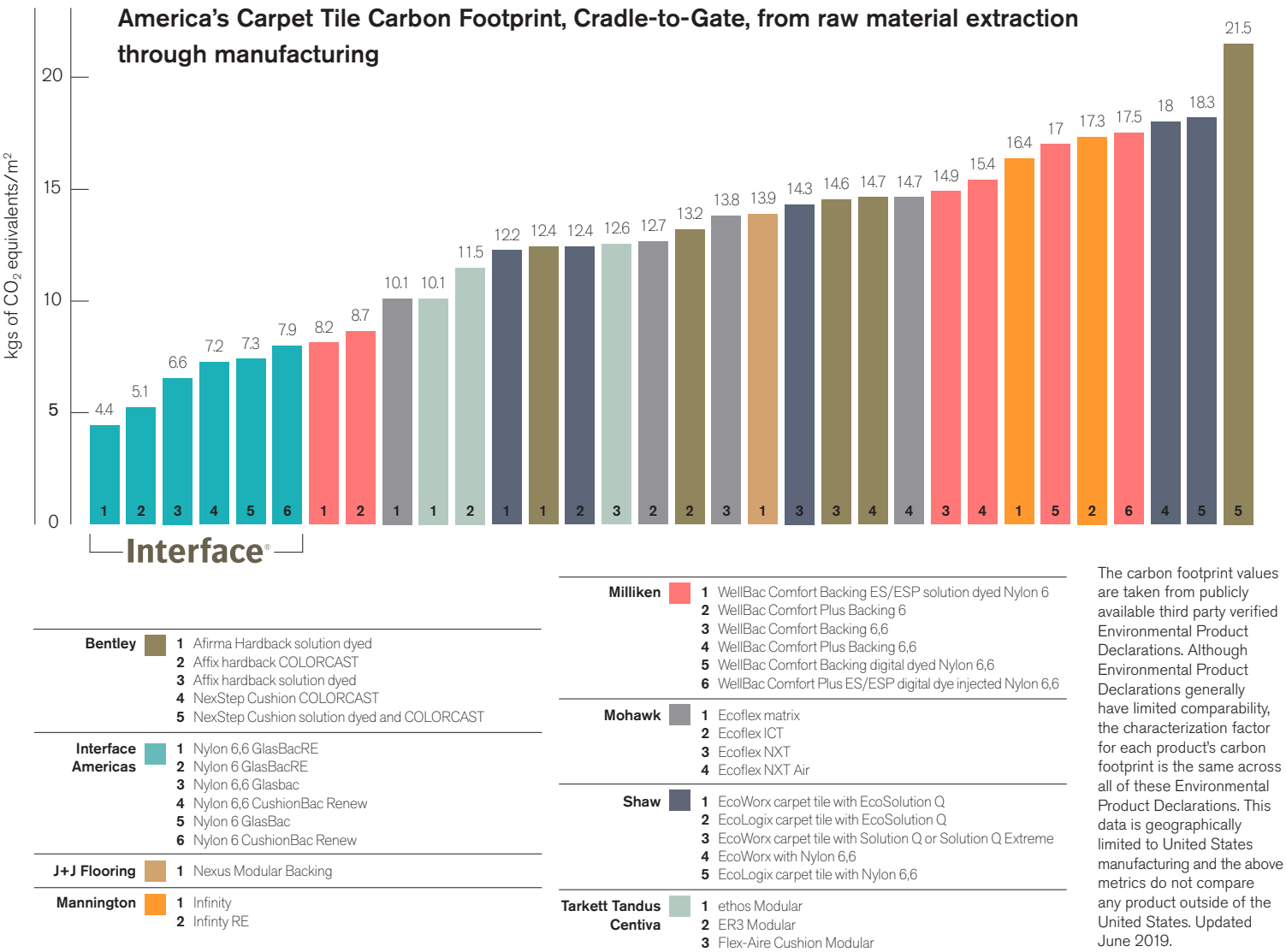


# Operational Versus Embodied Carbon

Historically, the emphasis has been placed on the reduction of Scope 1 and Scope 2 carbon emissions (operational carbon) because they are easy to measure. It is far more difficult for a university to consider and measure the Scope 3 embodied carbon footprint hidden inside its supply chain, yet the Scope 3 footprint is significant.

In 2007, U.C. Berkley became the first U.S. university to calculate its supply chain carbon footprint, and found the Scope 1 and Scope 2 emissions accounted for a combined 32 percent of all carbon footprint, while Scope 3 emissions accounted for the remaining 68 percent<sup>4</sup>.

To address the difficulty in assessing emissions, some universities are even building tools to help others track and measure carbon footprints. The University of New Hampshire created a carbon calculator for Scope 1 & 2 emissions that is used by more than 1,000 colleges and universities<sup>5</sup>. While useful, the calculator does not track Scope 3 emissions. The University of Washington will be hosting the Embodied Carbon Calculator for Construction (EC3)<sup>6</sup>, an open-source tool for measuring embodied Scope 3 carbon in building products. Additionally, West Coast Climate & Materials Management Forum offers a trend anaylsis tool to help organizations identify the carbon intensive products and services they use<sup>7</sup>.



# Operational Versus Embodied Carbon

Among flooring companies, Scope 3 emissions can be difficult for universities to ascertain. For example, many flooring companies doing business in the U.S. have third-party-verified Environmental Product Declarations (EPDs), which state the carbon impact of their materials and manufacturing processes for specific products. A skilled Life Cycle Analysis (LCA) expert who knows how to navigate the background Product Category Rules, or assumptions, to get an apples-to-apples comparison can help specifiers with visuals as referenced on page 8.

One way to measure the impact within the supply chain and to drive a university towards more sustainable procurement practices is to examine the “cradle-to-gate” carbon footprint of all potential vendors, which measures from raw material extraction through the completed manufacturing process.

In the example on page 8 of carpet tiles, Interface boasts the lowest impact at 4.4 kg/m<sup>2</sup> and 6.6 kg/m<sup>2</sup> respectively, while competitive products consistently release 2 to 3 times the carbon in cradle-to-gate measures. These ratings reflect best practices in the areas of amount of energy used, renewable sourcing, and the percentage of recycled materials present.

By selecting environmentally-aligned vendors, universities can leverage influence and purchasing power to force the flooring industry to offer more carbon neutral products as a standard across their portfolio. Technically, every flooring manufacturer could offer carbon neutral products today by simply purchasing carbon offsets as an interim strategy while getting their footprint to zero.

By requiring manufacturers to take ownership of their embodied carbon footprint before they can participate in campus business opportunities, universities can become an even greater force for climate responsibility.

- The opportunity exists to:
- Create a carbon neutral supply chain;
  - Align a university's procurement practices with its stated sustainability goals;
  - Significantly improve upon a university's carbon impact; and
  - Serve as an example among higher education and inspire large-scale change.

These fundamental changes in manufacturing practices and supply chain carbon neutrality must be a part of a global response to climate change. Progressive universities and forward-thinking architects will soon be writing embodied carbon specifications into campus design standards and considering these issues as a part of their broader climate initiatives.

# A Circular Business Model for University Flooring

Not unrelated to carbon footprint are circular business models. Today, discarded flooring accounts for nearly four billion pounds of landfill waste each year, or 3.5 percent of all landfill waste<sup>8</sup>. The “take, make, waste” linear economy is not sustainable, and circular economic models must be developed and adopted. Additionally, oil-derived plastics like many types of flooring should re-enter the circular economy for an immediate impact on not releasing more carbon into the atmosphere.

Leading organizations are now adopting circular economy models – decoupling growth from scarce resources and, thus, gaining a competitive edge. Global economies are rapidly approaching a point where the linear growth model is no longer viable for companies. This is due to the rising global affluence, the inability of many nonrenewable resources to keep up with demand, and the strained regenerative capacity of renewable resources.

For organizations, this leads to one inescapable situation: continued dependence on scarce natural resources for growth exposes a company's tangible and intangible value to serious risks.

The answer lies in a circular economy, where growth is decoupled from the use of scarce resources through disruptive technology and business models based on longevity, renewability, reuse, repair, upgrade, refurbishment, capacity sharing and dematerialization. This will lead to companies gaining a circular advantage – driving both resource efficiency and customer value, and delivering at the heart of a company’s strategy, technology and operations<sup>9</sup>.

Universities, as leaders in the field of educating others, have a unique opportunity to prove that carbon neutral supply chains and circular economies can be created. The plastic footprint of university flooring serves as a great example.

The potential to create a better business model in flooring exists today. Most colleges and universities structure their vendor relationships around transactional needs and one-off projects. By simply selecting new flooring at the time of a single individual project based on aesthetics, pricing or speed of delivery and installation - the embodied carbon (a Scope 3 carbon emissions reduction), the landfill waste (a solid waste diversion reduction), and the overall sustainable procurement goals of the institution are left to chance.

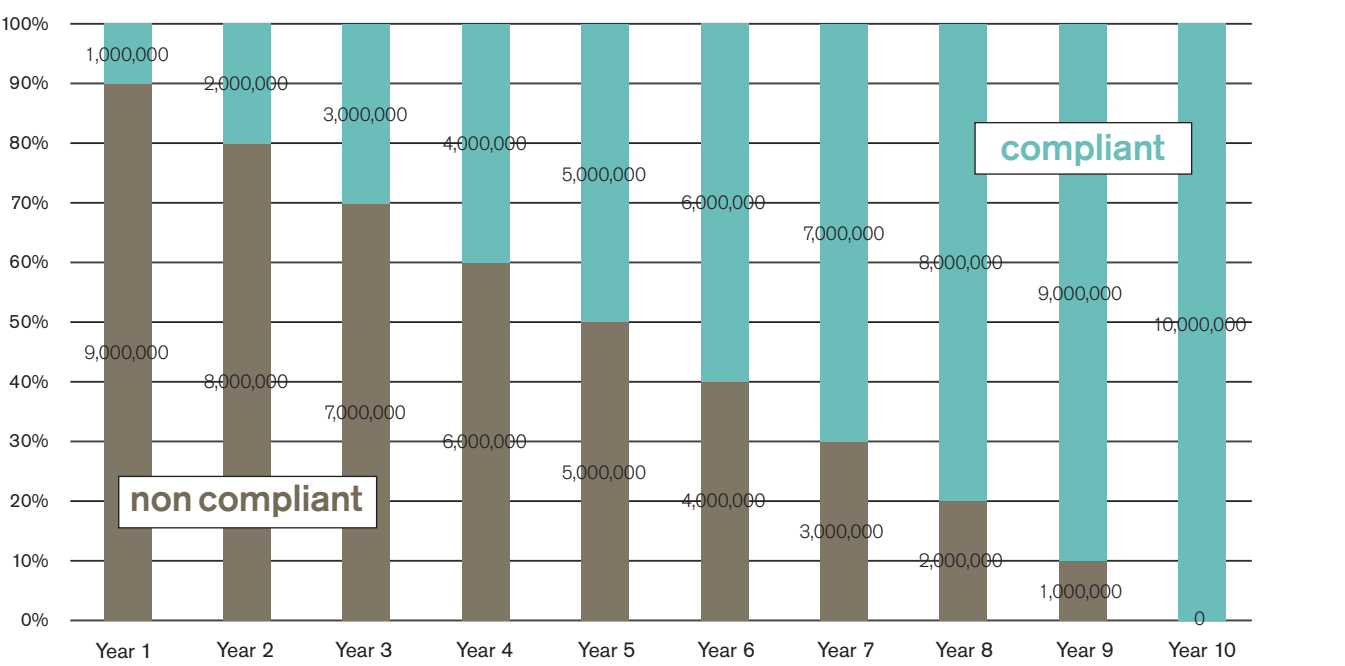
This transactional method of procurement in flooring also leaves significant buying leverage in the hands of vendors. Commitment to a single vendor for a campus-wide flooring project at \$1 million carries far more negotiating power and financial leverage than the negotiating power of 20 individually-bid and awarded projects at \$50,000 each.

# A Circular Business Model for University Flooring

If universities were to instead consider negotiating with a single vendor for the totality of the campus flooring requirements, they would accrue a number of key benefits. By selecting a single-source vendor for flooring and flooring installation, whose vision, mission and values align with the institution's stated sustainability goals, a university could, over the course of a single decade, install a circular business model and reap the following benefits while also meeting aesthetic, pricing, performance and delivery needs:

- Significantly reduce costs by utilizing a university's leverage on the flooring spend.
- Eliminate all flooring landfill burden of recyclable flooring materials.
- Eliminate all greenhouse gas (GHG) emissions on all new flooring purchases.
- Establish a flooring standard that eliminates dye-lots, wet glue, waxing labor, transition strips, solvent based installation systems, wax effluents and most glue buckets.
- Ensure that flooring has a third party verified product-to-product recycling program.

Higher purpose implementation plan: 10 year journey to a sustainable flooring program and the elimination of landfill flooring burden



# Selecting a Zero-Impact Vendor for Campus Flooring

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Transitioning to a single vendor requires new business practices to be set in place across a university's facilities and design, purchasing, installation, capital planning and residence life groups to ensure compliance. But, by aligning the sustainability vision, mission and values of a university with the vision, mission and values of a campus flooring vendor, the institution bends the arc of sustainability on campus in favor of procurement, carbon neutrality and solid waste diversion. The university also establishes a model of sustainability for vendors of other commodities to follow, placing the economic demand for sustainable practices onto the supply side (aka non legislated producer responsibility).

Often, the first stage in the process of selecting a zero-impact vendor begins inside the campus sustainability committee. Sustainability committees flesh out and give life to the sustainability vision usually articulated by the President or Chancellor of a university, and they usually meet monthly or quarterly. A sustainability vision usually includes six key areas of focus:

- 1.Climate Action
- 2.Renewable Energy
- 3.Sustainable Procurement
- 4.Solid Waste Diversion
- 5.Curriculum
- 6.Student Engagement

Each of these areas should be key decision-making criteria when selecting a vendor for an institution. Sustainability committee meetings – where procurement, facilities, capital planning, housing and students are always participants – are among the best opportunities to discuss the environmental impacts of a university's existing business practices from a holistic perspective. With regard to a campus's flooring program, a high-level analysis can be performed with like-minded stakeholders in the room who have a university's overall best interests at heart.

# Selecting a Zero-Impact Vendor for Campus Flooring

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Flooring manufacturers claim to be sustainable, but are they really? The sustainability committee can perform an objective analysis by examining the various vendors' paths toward sustainability and by asking questions like:

- Is the vendor a sustainability leader across all industries or in flooring alone?
- Does the vendor actively practice sustainability across the scope of their manufacturing operations, globally?
- What percentage of renewable energy do they use?
- How much has their water usage been reduced?
- What percentage of their product is recycled content from old carpet?
- What was their position on California's Carpet Recycling legislation AB1158?
- What is their organization's carbon footprint?
- What is their product's carbon footprint?
- Does their organization have a plan for getting to zero carbon footprint, or to become carbon negative?

Interface can offer universities a carbon neutral footprint standard on all products globally, and a comprehensive and sustainable takeback program in flooring. By selecting Interface as the flooring manufacturer and service company of choice for a university, in addition to the advantages of cost and carbon neutrality in the supply chain, carpet and LVT reclaimed through the company's takeback program ReEntry® make it possible to produce products for other customers around the world with fewer virgin raw materials<sup>10</sup>.

Thanks to this reuse of recycled materials, Interface has achieved the circular business model so many universities seek to create. Those that partner with Interface to institute a circular business model for campus-wide flooring requirements may:

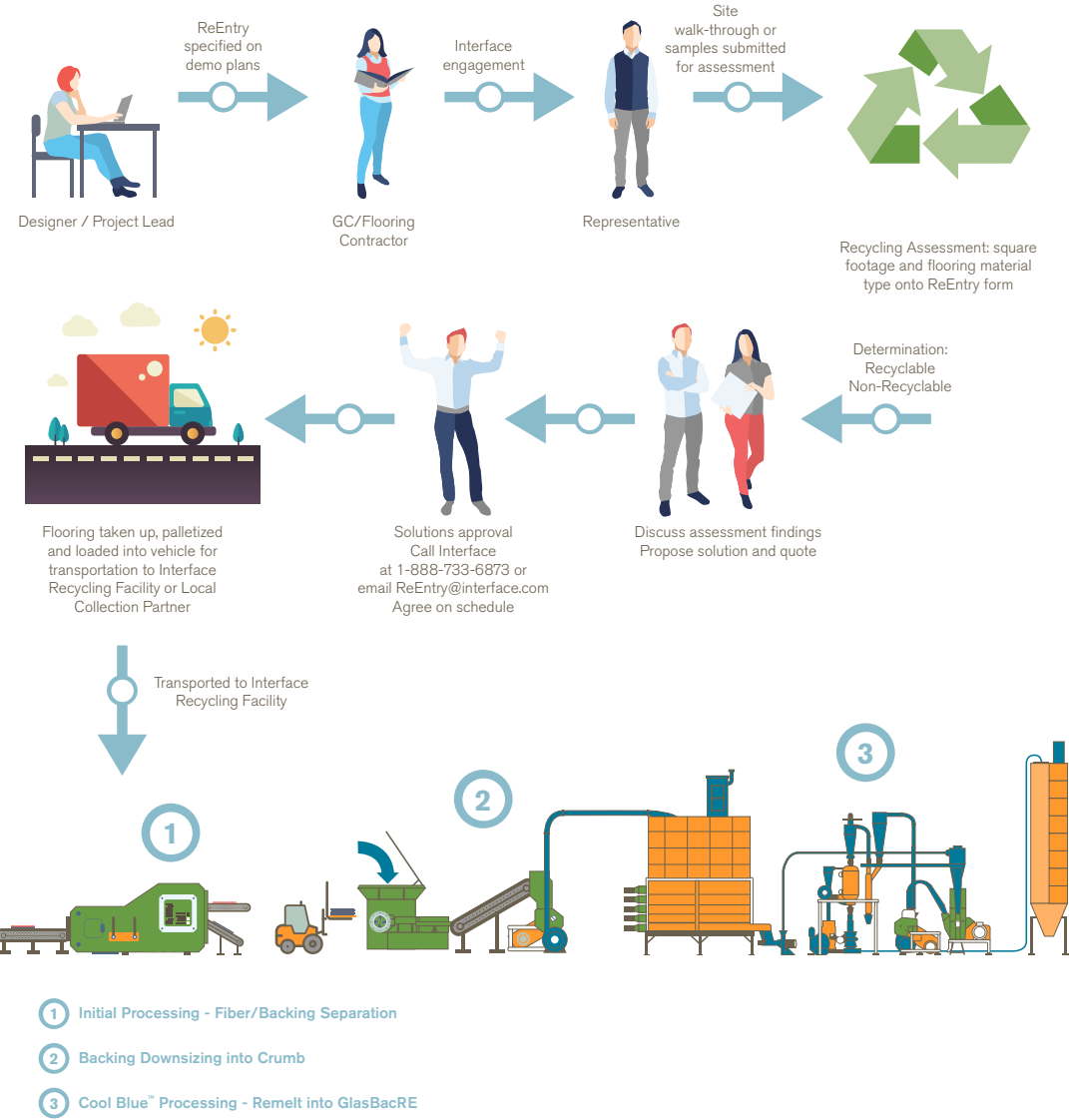
- Improve their scores in LEED and, by extension, the AASHE STARS Buildings credits.
- Earn points in the AASHE STARS Waste Minimization and Diversion credit.
- An institution that has a stated preference (e.g., in published policies or guidelines) for sustainable takeback programs, reclaimed materials, and/or carbon neutral supply chains for flooring and furnishings can earn points in the
- AASHE STARS Sustainable Procurement credit.

# Interface: Carbon Neutral Operations, Carbon Neutral Floors, Globally

Interface's Mission Zero® commitment to have no negative impact on the environment required the company to rethink the design of its products, from raw material extraction to manufacturing to end of life. ReEntry allows Interface to reclaim products for use for new products, resulting in the diversion of millions of pounds of waste from landfills each year.

## ReEntry® Recycling Program

Through our ReEntry program, which includes partnerships with independent recyclers, Interface reclaims used carpet tile and LVT and ensures that nothing ends up in a landfill. Vinyl backed carpet tiles are given a second life primarily in Interface's recycled content GlasBac®RE backing system, which contains 98% total recycled content.



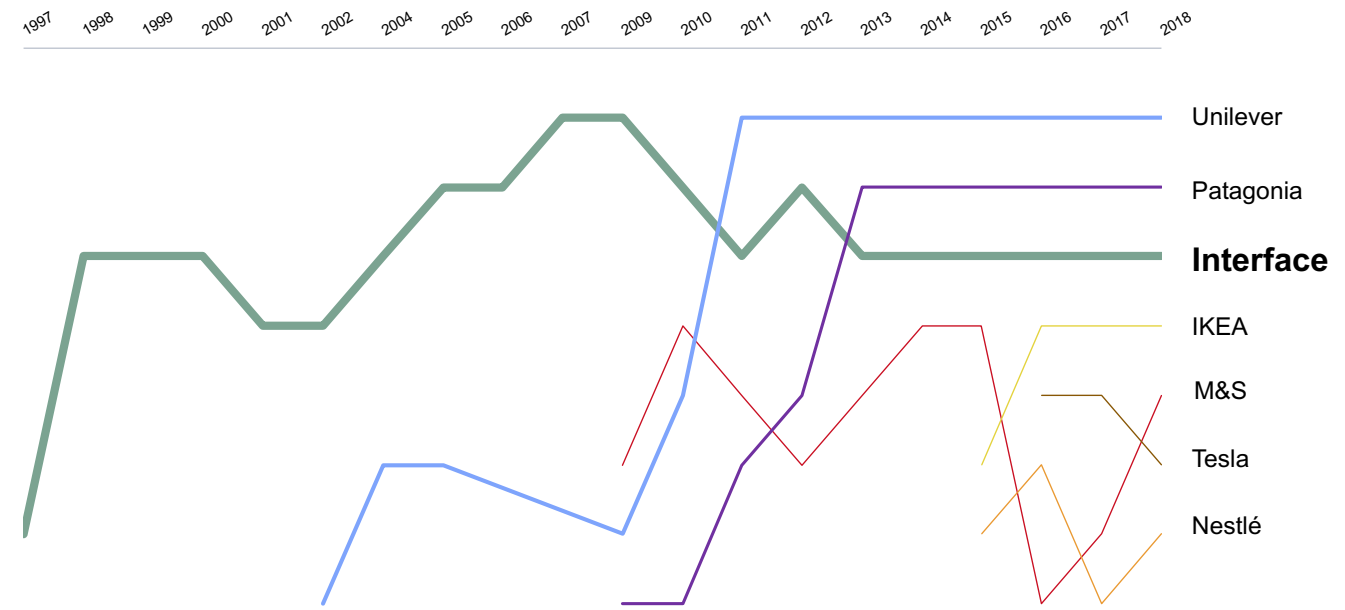
# Interface: Carbon Neutral Operations, Carbon Neutral Floors, Globally

As the global leader in sustainability<sup>10</sup> for over 20 years running, Interface is not just reclaiming used Interface carpet tiles and LVT through ReEntry. In fact, Interface accepts approved vinyl-backed carpet from other manufacturers and can sometimes facilitate the reclamation of non-vinyl backed carpet tile and broadloom<sup>11</sup>. It's also busy incorporating discarded fishing nets (ocean waste) back into the face fiber of 60 percent of its global production.

Since 1994 when Interface's original sustainability commitment took place, the manufacturing leader has proven its commitment to the vision of a carbon neutral – or net-negative – impact.

The Interface brand is today among the top three companies in the world (along with Unilever and Patagonia) on the GlobeScan Sustainability Survey<sup>10</sup>.

## Interface endures as Sustainability Leader for 21 years running



By taking a strategic, long term approach to developing campus-wide flooring standards for new construction and renovation based on metrics that matter, and by selecting Interface as a single source vendor for their flooring footprint, universities can reduce total embodied carbon emissions to zero, reduce their landfill burden for flooring to zero and dramatically lower costs on the purchase of flooring at the university.



# The circular economy beneath your feet.

Take Ownership of Your Plastic Flooring Footprint

## An Interface white paper.

### Footnotes

- 1 American College & University Presidents' Climate Commitment (ACUPCC)
- 2 AASHE STARS 2017 Sustainability Index
- 3 GHG Protocol FAQs
- 4 A supply chain carbon footprint analysis of the University of California, Berkley
- 5 University of New Hampshire Campus Calculator
- 6 EC3
- 7 WSSD study
- 8 EPA – Carpet
- 9 Accenture – Circular Advantage
- 10 GlobeScan Sustainability Leaders Study 2018
- 11 Interface ReEntry

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At Interface, we're convinced a fundamental change needs to happen in our global response to climate change. Our mission, Climate Take Back™, invites other companies to join us as we commit to running our business in a way that is restorative to the planet and creates a climate fit for life.

For more information visit  
[www.interface.com/ClimateTakeBack](http://www.interface.com/ClimateTakeBack)

**Interface®**

