

make sustainability beautiful |

a primer on our environmental point of view

At Metro, we are committed to creating economic and ecological prosperity today without compromising the opportunity of others to do the same tomorrow. We measure the impact of our activities, report them honestly, and continually strive to do more with less. We continue to deepen our understanding of sustainability through new learning – and openly share our knowledge and experience to encourage the active participation of our employees and others outside of our company.

Understanding the myriad, complex issues related to human and environmental health, and the impact of our actions as designers and manufacturers of furniture, takes resolve. It requires that we keep abreast of developments in materials and processes, regulations and guidelines, and the direction of the marketplace. And it requires that we sift through an ever growing stream of information to determine what is relevant and actionable, and what is not.

Some choices we can make independently, while others we can make only with the support of the marketplace. In the case of the latter, we can only explain our reasoning, lead by example, and hope that others will choose to follow.

And like the furniture we make, we strive to **make sustainability beautiful**.

The purpose of this document is to share with you some of our learning, decisions, and actions – through the topics of *rethink*, *renew* and *reassure*. While we hope that it will inform, our greater hope is that it will encourage inquiry and dialogue. We look forward to your questions and your conversation.

rethink...minimizing our impact through *design* and *specification options*

reassure...assessing what is true and what is not through *federal guidelines* and *certifications*

renew...replacing what we use through *future forests™*



rethink | minimizing our impact through *design and specification options*

The challenges that we face in protecting, preserving, and repairing our environment can often seem overwhelming. How, as individuals in a world of 6 billion, can we effect change? Where do we start? One thing seems fairly certain... if we want a different result we are going to have to change our approach. We need to reconsider what we are doing and how we are doing it. **We need to rethink our solutions.** Rethinking involves considering the connections between consumption, waste, and human & environmental health – to lessen the impact through increased efforts to **reduce, reuse and recycle.**

Metro is in business to meet the needs of a specific customer. We have been successful over our 101 year history by knowing our customers well, developing an informed perspective on how workplace dynamics change and where they are headed, and then creating products that will help our customers to navigate and succeed through those changes. While we have a strong point of view that is reflected in the materials we use and the products we offer, we cannot dictate to the market. We can only offer our best guidance and trust that the market will follow with the best decisions. The buyer can make product decisions that will lessen the environmental impact of their furniture – and the informed specifier can help guide those decisions.

reduce...*understanding the connection between consumption, waste and human & environmental health*

There are three reasons to reduce, reuse, and recycle:

1. conserve and preserve raw materials and the environment from which they are extracted
2. conserve energy used to process and distribute materials
3. prevent harm to human and environmental health

For too long we have taken the approach of using things, then discarding them. We don't know enough about where things came from, where they will go, and with what result. Until we make and understand those connections we'll continue to waste and have detrimental impact to human and environmental health. We can **reduce** the consumption of raw materials and energy in two ways: by using less and by making new things from more of what we've already used and discarded.

What does Metro do to reduce?

As designers and manufacturers, there are many things that we consider in **designing** and bringing new products to market:

- How much material are we using and can we use less?
- How many materials are we using and can we use fewer?
- What chemicals are in the materials and can they be more healthful?
- How are the materials combined and can they be easily separated?
- Can they, and will they be, recycled?
- How much of the material we use is recycled and can it be more?
- What processes will be used in manufacturing and can there be fewer?
- Will there be waste generated in manufacturing and can it be eliminated?

The Metro **product portfolio**, as it has developed over the last several years, reflects this way of rethinking – to make products that are beautiful and sustainable. Examples include:

Topo

- Extensive use of anodized aluminum extrusions. While energy intensive in initial production, aluminum, as long as it is not contaminated, can be infinitely recycled, typically at about 5% - 10% of the initial energy requirement
- Very easy separation of materials (steel, aluminum) for which there are well established recycle streams

Poly

- Depending on version specified just 2-3 materials; polyester, steel, possibly aluminum (versions with 5 star bases)
- Metals easily separated from polyester, no need to separate polyester fabric from polyester shell

Peel

- Just steel and glass. It doesn't get much simpler than that. Made from materials with very high recycled content, easy to separate, easy to recycle

Metro continues to rethink **manufacturing** in an ongoing effort to reduce our consumption. Examples include:

- Reduced consumption by changing all factory ambient lighting to *high output* fluorescents
 - 66% reduction to electric energy consumption
 - 90% reduction in heat generated
 - 70% reduction in maintenance & replacements over 10 year life
 - 30% improvement in light quality
- Reduced outbound packaging material consumption by replacing most corrugated cardboard with a combination of clear stretch wrap and polypropylene bumpers
 1. both of which have high recycled content
 2. both of which have well established streams for future recycling
- Reduced wood veneer consumption by replacing veneer with a paper backer on the underside of all worksurfaces and the insides of pedestals

What can you do to reduce?

The buyer or specifier might follow these recommendations in selecting products having a lesser impact to human and environmental health:

- **Select wood veneer vs. composites as surface materials**
 1. wood is a renewable resource that, in the U.S. at least, is being replenished at a rate of approximately six trees planted for every one that is harvested
(Source: *American Forest and Paper Association. 1995. US Forest Facts and Figures.*)
 2. healthy forests provide critical "carbon sinks" and climate mediation – supporting a responsible forest industry maintains and improves a natural resource that cleans our air and reduce greenhouse gasses
- **Select wood edges on worksurfaces**
 1. wood edges would not have to be separated from a wood surface in order to be recycled, composted, or used as biomass
 2. wood edges that might go to landfill will not, in the process of decomposition, release harmful chemicals that could find their way into the atmosphere or the water table
- **Select wood sources carefully**
 1. while most of the U.S. timber industry has recognized the long-term economic value of investing in and maintaining responsible forestry practices, the same is not necessarily true in many other countries
 2. though there is an argument that purchasing foreign timber provides the economic support required to develop responsible forestry in countries struggling to manage their natural resources, consider looking for "certification" that such practices are already in place
 3. consider the energy impact of transporting materials from foreign sources
- **Select clear wood finishes vs. stains**

the fewer the substances added to the wood the more likely it is to be a successful candidate for future recycling, composting, or use as biomass
- **Select rectilinear worksurface shapes**

cutting irregular shapes from rectangular panels produces waste for which there is no economically viable secondary use

reuse & recycle...making new things from what we've already used and discarded

When we discard things to landfill we are not only wasting the raw materials and energy that went into their original production, we are also contributing to global climate change. How? As things decompose in landfill they release numerous gases, principal among them, carbon dioxide, methane, and nitrous oxide. All of these are considered to be *greenhouse gases* (GHG's), all are significant contributors to the greenhouse effect, and all contribute to global warming. So, to the extent that we can divert things from landfill into some new, useful purpose, we can reduce the volume of GHG's going into our atmosphere. The numbers can be significant. According to United States Environmental Protection Agency (U.S. EPA), eliminating the gap between the current U.S. recycling rate of about 32% and their 2008 goal of 35% would reduce GHG emissions emanating from landfill by 6 million metric tons of carbon equivalent (MTCE), roughly the amount produced in generating the electricity consumed by 2.75 million households.

references & further reading

<http://www.epa.gov/wastewise/climate/change.htm>

Increasing the rate at which we make new things from what we've already used (recycling) requires changes in both perceptions and behaviors. Such changes can be driven by **education**, economics, and/or **forceful encouragement** such as regulation, or legislation. Education has been conducted through a myriad of programs, from public outreach to professional development.

Understanding U.S.G.B.C. – LEED (NC, EB, CI)

Among the most effective and successful professional development approaches to education have been the U.S. Green Building Council LEED (Leadership in Energy and Environmental Design) programs, whereby the value of reuse and recycling are reinforced by awarding points leading to the *certification* of a built environment. Examples include:

- **Materials & Resources, Credit MR 4.1 – Recycled Content, 10% (post consumer + ½ pre-consumer)**
use materials (furniture and furnishings) with recycled content such that the sum of post- consumer recycled content plus ½ of the pre-consumer content constitutes at least 10% of the total value of the materials on the project – may contribute 1 point toward Certification
- **Materials & Resources, Credit MR 4.2 – Recycled Content, 20% (post-consumer + ½ pre-consumer)**
use materials (furniture and furnishings) with recycled content such that the sum of post- consumer recycled content plus ½ of the pre-consumer content constitutes at least 20% of the total value of the materials on the project – may contribute 1 point, in addition to MR 4.1, toward Certification

Understanding “Environmentally Preferable Purchasing” (EPP)

Forceful encouragement occurs via the development and implementation of policies and practices, often initiated at various levels of government that are often later adopted by the private sector. An example is the Resource Conservation and Recovery Act (RCRA) of 1976 which, among other things, directed government agencies to reduce the amount of waste they disposed. The Act also required U.S. EPA to designate products that can be made with recovered materials (**recycled content**) and recommend practices for buying them. Since the program began, EPA has identified 61 categories of products, ranging from bike racks to running tracks, engine coolants to office chairs. Once a product is designated, procuring agencies that spend more than \$10,000 a year on that item are required to make their purchase decision based upon the “highest recycled content level practicable.”

President Clinton's 1998 Executive Order (EO 13101), titled “Greening the Government through Waste Prevention, Recycling, and Federal Acquisition” further leverages the federal government's status as the single largest U.S. consumer of goods and services (\$200 billion per year) by directing all federal agencies to identify and purchase products that have a “lesser or reduced effect on human health and the environment.” The result is a policy/program referred to as “**Environmentally Preferable Purchasing**” (EPP), a federal-wide program that “encourages and assists” Executive agencies in the purchasing of environmentally preferable products and services. The significance of this goes far beyond dealing with government purchasing entities. Many private sector organizations are recognizing the value of the ground-work laid by the government and are adopting the policies and programs in their own purchasing policies and decisions.

references & further reading

<http://www.epa.gov/cpg/>

<http://www.epa.gov/epaoswer/non-hw/procure/about.htm>

<http://www.epa.gov/epaoswer/non-hw/procure/pdf/cpg-fs.pdf>

<http://www.epa.gov/epaoswer/non-hw/procure/products/furniture.htm>

<http://www.epa.gov/epaoswer/non-hw/procure/pdf/nonpaper.pdf>

<http://www.ofee.gov/eo/13101.htm>

Understanding recycled content in furniture

Recycled content is typically broken into two categories: **pre-consumer** (sometimes called post-industrial) and **post-consumer**. The difference is simple. When a manufacturer making an aluminum drink can punches the hole in the top and recycles the resulting scrap – that is pre-consumer (it is still in the manufacturing cycle and has not yet reached the consumer). When we as consumers recycle the same aluminum can after consuming the contents – that is post-consumer.

Calculating the amount of recycled content in a product requires knowing what materials have gone into it, the recycled content for each of those materials, and the relative weights of both.

Example – **Chair A with steel frame & wood seat:**

Steel weight:	20 lbs.	
Recycled content of steel @32%:		6.4 lbs.
Wood weight:	20 lbs.	
Recycled content of wood @ 0%:		0.0 lbs.
Total weight:	<u>40 lbs.</u>	
Total recycled content by weight:		<u>6.4 lbs</u>
Total recycled content as %: 6.4 lbs. recycled / 40 lbs. total weight = 16%		

The calculation of recycled content for LEED credits becomes a bit more complex in that the post-consumer content is valued at 100%, whereas the post-industrial content is valued at only 50%. Why? To encourage a greater rate of recycling by us as consumers.

Important note: Trying to state the recycled content of product line as a whole can be problematic. Why? Because various products within the line are all likely to have varying amounts of recycled content. If product 'A' has 10%, product 'B' 30%, and product 'C' 60%, what should one state as the recycled content for the entire line? The average?

What does Metro do?

Metro has developed a comprehensive database cataloguing all of the materials used in all of the products that we manufacture. Using this database, we are able upon request to determine the exact percentages of post-industrial and post-consumer recycled content for each individual product. The data can be provided in absolute percentages, or in the ratios required to address LEED, Materials & Resources, Credits MR4.1 and MR4.2. **Virtually all Metro products satisfy the criteria for both LEED credits.**

reassure | assessing what is true and what is not through *federal guidelines* and *environmental certifications*

In response to rapidly developing public interest in the health of our environment has come a tidal wave of statements and claims, by organizations of all kinds, attesting to their commitment to environmental responsibility. In some cases, the reputation of the organization may give us confidence in the claims; while in other cases, the exact opposite is true. In the vast majority of cases, however, we probably just don't know. If we have no informed basis from which to assess the claims, are we left to simply hope and trust? Not quite. As consumers we have at least two *tools* to help protect and inform us: Federal guidelines and private third party certification programs.

Understanding Federal guidelines

The Federal Trade Commission (FTC), has the responsibility and authority to “prevent deception and unfairness in the marketplace.” In 1992 and again in 1998, the FTC issued its Environmental Guides to protect against all forms of false or misleading *green* marketing claims – including advertising, labels, symbols, logos, etc. The primary concern of the FTC is not so much technical detail as it is the *message* conveyed to consumers. Is the information factual, complete, unambiguous, easy to find; and, is the consumer likely to interpret it correctly? To illustrate the point, the FTC offers the following examples on their website:

- A box of cereal is labeled “recycled package”. The package consists of a paperboard box with a wax paper bag inside holding the cereal. By itself, the claim “recycled package” could apply to both the box and the bag. If only the box is recycled, the claim is deceptive. It should be qualified to say, for example, “recycled box”.
- A steel can that contains vegetables is labeled “recycled”. No qualification is necessary for this claim because it is obvious to consumers that the can is recycled –not the vegetables.

If the FTC determines that a marketing claim does not meet its criteria, it has the power to force the marketer to make changes. While the protections offered by the FTC Environmental Guides are very important, it must be understood that they do not establish environmental performance standards or prescribe testing protocols. In other words, while the claims the marketer chooses to make must pass FTC muster, *which* claims the marketer chooses to make are at his or her discretion.

Understanding environmental certifications

Third party certification programs provide the other side of the coin. They define a precise set of boundaries that form a claim, determine exactly what the claim means, and prescribe very specific criteria required to substantiate the claim. The objective is to ensure that everyone making the claim means the same thing, is using the same measures, and is meeting the same burden of proof. Finally, third party certification programs serve the role of interpreting often complex scientific and/or technical data and providing verification for the layperson that the required criteria have indeed been satisfied.

It's important to recognize that while some third party certification programs are *consensus-based*, others are based on *independent* assessment. The difference is significant. Consensus-based programs derive their authority and credibility through consultation with, and agreement by, a large constituent body. The **U.S. Green Building Council LEED program** would be a good example. Independent programs, on the other hand, while they may invite consultation and comment, are in the end a statement of the certifiers own convictions. They derive their authority and credibility from the recognized expertise of the certifiers' personnel. The **McDonough Braungart Design Chemistry (MBDC) Cradle-to-Cradle certification** is a good example.

Why are these certifications meaningful or important?

The way that we design products, the materials we choose to incorporate, and the manufacturing processes we use to make them, all have an impact on human and environmental health. Certifications, while largely based on the final product, are ultimately a measure of the decisions made during design and the processes used in manufacturing. Understanding the impact of those decisions and processes enables us to deliver products that minimize or eliminate risks to human and environmental health.

Environmental certifications, such as **SCS Indoor Advantage™ & Indoor Advantage™ Gold**, are based on the scientific analysis and assessment of factors that our human senses typically cannot detect. Example – formaldehyde:

The Department of Health and Human Services has classified formaldehyde as “reasonably anticipated to be a human carcinogen”. The International Agency for Research on Cancer (IARC), on the other hand, has classified it as “a known carcinogen”. In other words, formaldehyde is, or at least probably is, a cancer causing agent. In high concentrations, formaldehyde has a pungent smell that can be easily detected. Its deleterious health effects, however, persist in lower level concentrations where its smell cannot be easily detected. Scientific analysis is required to determine the level of its presence and the potential for deleterious health effects. Lab tests leading to certifications such as SCS Indoor Advantage and Indoor Advantage Gold, provide us that information.

Scientific Certification System (SCS) Indoor Advantage™ & Indoor Advantage™ Gold demonstrates that a product conforms to BIFMA and LEED criteria based on analysis of factors effecting indoor air quality (i.e. formaldehyde).

MBDC Cradle-to-Cradle (C2C) Certification is granted when a product meets stringent criteria based on: the use of safe and healthy materials, design for material re-utilization, efficient use of energy and water, and appropriate regard for social responsibility.

What does Metro do?

To ensure that Metro’s business activities have minimal impact to human and environmental health, we engage independent examiners to conduct regular audits and testing of both our products and our processes. The primary objectives of these examinations are to:

1. follow transparent, internationally recognized and accepted standards
2. provide our customers with reliable information that has been independently verified by third parties
3. inform all of our decisions, from design to delivery of products, on a factual and unbiased basis

Metro currently engages in two certification programs: MBDC Cradle-to-Cradle™ Certification, and SCS Indoor Advantage™ & Indoor Advantage™ Gold certification.

- **MBDC Cradle-to-Cradle™ Silver Certification:** Poly
- **SCS Indoor Advantage™ Certification:** Topo, TeamWork & Detour
- **SCS Indoor Advantage™ Gold Certification:** Poly

references & further reading

<http://www.epa.gov/iaq/formalde.html>

<http://es.epa.gov/techinfo/facts/envmessa.html>

<http://www.ftc.gov/bcp/online/pubs/buspubs/epaclaims.shtm>

<http://www.ftc.gov/bcp/online/pubs/general/sortgrn.shtm>

http://www.scscertified.com/PDFS/manufacture_IndoorAirQuality_SEC10_080504.pdf

http://www.scscertified.com/manufacturing/manufacture_LEED.html

<http://www.osha.gov/SLTC/formaldehyde/index.html>

<http://www.napcor.com/whatispet.htm>

renew | replacing what we use through *future forests*TM

There are many important reasons to use **renewable materials**. In the final analysis, however, we need just one – the resources available to us do not belong to us, we are simply their stewards. To the extent that we use and enjoy them, we must ensure their availability for use and enjoyment by the next generation of stewards. This means that **as we use them we must replace them**.

As designers and manufacturers of refined furniture, Metro places a particular emphasis on wood – specifically American hardwoods including cherry, maple, walnut, and white oak. We use these woods both as veneers and as solid lumber; and we use only the most select cuts, typically the finest 10%. And, as we consume these precious resources we replace them.

What does Metro do?

Metro's *future forests*TM program, in conjunction with The Hardwood Forestry Fund, ensures the renewal of our forests with yearly plantings. Since the inception of the program in 2000, *future forests*TM has planted over 44,000 trees – replacing 1.8 million board feet of lumber and more than 9.2 million square feet of veneer, in approximately the same species ratios as our use. At maturity (65 – 100 years) these planting will have the potential to yield:

44,267 hardwood trees
4.064 million board feet of hardwood lumber
21.221 million square feet of hardwood veneer

The purpose of planting forests, however, is not just to ensure a future source of raw materials. Forests play an essential role in the maintenance of healthy ecosystems, preventing soil erosion, and providing critical wildlife habitats. Through photosynthesis, healthy, growing forests also play an important role in reducing the *greenhouse effect* by taking in carbon dioxide, using the carbon as *food*, and returning pure oxygen. In fact, one acre of trees can remove about 13 tons of dust and gasses from the atmosphere. Finally, through transpiration, trees pump water from the earth, back into the air, a process critical to moderating temperature and mitigating flood potential.

references & further reading
www.hardwoodforestryfund.org