



Furniture & Medical Furnishings

Technical Brief

Green Guide for Health Care Materials & Resources Credit 5.1, 5.2, and 5.3 (Construction section)

Green Guide for Health Care Environmentally Preferable Purchasing Credit 5 (Operations section)

Overview

Health care organizations committed to building and operating healthy, high performance facilities have found in recent years that the availability of green furniture and furnishings appropriate for the health care sector is more limited than that of green building materials. Indeed, many of the toxic chemicals and production practices being phased out of building materials remain the status quo in health care furniture and furnishings. However, with health care's rapid market uptake of green building practices over the last few years, many companies are offering expanded green alternatives and a wider spectrum of color and pattern in textile choices that meet health care's rigorous demands.

The three Furniture & Medical Furnishings credits in the *Green Guide for Health Care* ("Green Guide") Construction section (GGHC v2.2 Materials & Resources Credits 5.1 - 5.3) address two opportunities: first, reducing manufacturing-related environmental impacts; and, second, reducing the cost of "new" furniture and equipment purchase by facilities. To these ends, these credits include consideration of resource reuse, persistent bioaccumulative toxic chemical (PBT) avoidance, wood certified by the Forest Stewardship Council (FSC), local or regional sourcing, minimal packaging, and "end of life" concerns.

In the *Green Guide's* Operations section, Environmentally Preferable Purchasing Credit 5: Furniture & Medical Furnishings encourages phased purchasing of green furniture and furnishings in operational facilities. Environmentally preferable purchasing programs should address both the content of products (addressed in the Materials & Resources section) and the level of toxic emissions produced by the product after installation (addressed in the Environmental Quality section). As a result, Environmentally Preferable Purchasing Credit 5 refers both to Materials & Resources Credits 5.1-5.3 and Environmental Quality Credit 4.5: Low Emitting Materials: Furniture and Medical Furnishings.

The Challenges

While cost premiums for green furniture can present challenges, the major barrier to green furniture and furnishings in the health care environment is insufficient selection. The variety of product models is often limited by the sheer number of specialized equipment (such as exam tables) required to supply a typical health care facility. Furnishings also must withstand considerable wear and tear and comply with strict infection control standards. Add aesthetic criteria and cost limitations to the list of considerations, and the limited selection of available green products can present a significant barrier.

The increase in demand over the past few years for healthier alternatives has encouraged manufacturers to increase their color palette from a few neutral colors to a larger spectrum of choices with more engaging patterns. However, the small selection and cost premium associated with these products continue to pose a challenge to all but the most adventurous projects.

Best Practices

PBT Elimination

Specify products free of persistent bioaccumulative toxic chemicals (PBTs) to decrease the discharge of pollutants to the environment associated with processing, use, and disposal. PBTs are a class of pollutants that do not break down rapidly in the environment (persistent), accumulate in living tissues and concentrate as they move up the food chain – for example from algae to fish to human (bioaccumulative) – and are hazardous to human and environmental health (toxic). PBTs are associated with a range of serious human health effects, including cancer, endocrine disruption, brain and nervous system damage, birth defects, and impaired childhood development. A variety of PBTs are used in building materials or are a byproduct of the material life cycle or produced in manufacture or at disposal. For more information about PBT avoidance, please review the *Green Guide's* PBT Elimination and Mercury Elimination Technical Briefs.

Minimize Packaging

Packaging is required for most construction materials and building products to protect them during transportation to the job site and storage once they have arrived. While some level of packaging is necessary, many furniture and furnishings manufacturers have begun to limit packaging material to the absolute minimum. Others have switched to reusable packaging that can be returned to the manufacturer after the product has been installed. If non-reusable packaging is required, projects should request minimal packaging materials that can be either recycled or composted after use. For more information on minimizing packaging, please review the *Green Guide's* Low Impact Construction Practices Technical Brief.

“End of Life”

“End of life” programs are more highly developed in the furniture and furnishings industry than in building materials. These programs chart an “end of life” scenario for the product before it has been purchased and installed in the new facility. Appropriate destinations include reuse/refurbishment, disassembly, recyclability, biodegradability, or returning the product to the manufacturer via a “take back” or “green lease” program. Each option has the potential to reduce the Ecological Footprint of the product over its lifespan.

- **Disassembly/Refurbishment/Reuse**

Designers are encouraged to work with manufacturers and the health care organization's purchasing group to specify durable medical furnishings that can be easily upgraded or repaired. Reuse and refurbish as much furniture as possible. If pieces are left over after fit-out, store them in the health care facility's property disposition storage center or consider donating the furniture to non-profit organizations or selling it to re-manufacturers.

Health care facilities are particularly encouraged to reuse chrome-plated products rather than purchasing new pieces. The manufacturing process for chrome plating is potentially damaging to the environment but the chrome surface is inert after plating and is a highly durable and cleanable surface. If chrome furniture is necessary, specify trivalent chrome (Chrome III), which is a non-carcinogen and is often recycled from the hexavalent chrome (Chrome VI) plating process.

- **Manufacturer “Take Back” or “Green Leasing” Program**

These programs transfer the responsibility for reuse, recycling, composting, or proper disposal of the product at the end of its life to its manufacturer. Leasing programs often include a built-in upgrade schedule that ensures that the facility remains at the forefront of technological advances in products

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as diverse as furniture, flooring, and medical equipment. In 2005, the rapidly expanding U.S. health care equipment leasing market totaled \$7 billion. It is expected to exceed \$8 billion by 2007.¹

Benefits

Health

Green furniture and medical furnishings can contribute to improved indoor air quality and reduce the direct and indirect health impacts associated with exposure to toxic chemicals, such as Volatile Organic Compounds (VOCs) and Persistent Bioaccumulative Toxic chemicals (PBTs). The direct impact of toxic chemicals that off gas into a health care facility's indoor environment can range from eye, throat, and chest irritation to asthma and cancer, depending on which chemicals are present. Avoiding materials whose manufacturing process or incineration can result in health problems in neighboring communities, such as PVC and hexavalent chromium, enables health care organizations to hold true to their mission of "first, do no harm" and their commitment to community stewardship.

Ecologic

Recycling, refurbishing and reusing medical furniture and furnishings reduce the facility's solid waste stream, thereby alleviating the strain placed on landfills and conserving natural resources. Specifying wood products that can be traced to sustainably managed forests, as certified through the Forest Stewardship Council, reduces erosion, water pollution, and habitat destruction attributed to conventional forestry. The use of regional assembly practices through recycling and/or refurbishing existing furniture reduces transportation activities and the resulting pollution associated with delivery of furniture products to the project site.

Economic

While some of the materials associated with green furniture and medical furnishings may result in a cost premium, in many cases the price point can be reduced through bulk purchasing practices, purchasing local products, or by leasing new furniture. The IRS allows companies to treat furniture leasing as a tax-deductible overhead expense, rather than a new purchase. Refurbishing and reusing furniture from older facilities can reduce the overall furniture budget. And, in some cases, selling previously used furniture to employees or other health care facilities may raise the necessary funds to purchase new, green furnishings.

Case Study

Metro Health Hospital, Grand Rapids Michigan

As part of its sustainable design strategies with Metro Health Hospital, a 500,000 sf replacement hospital in Grand Rapids, Michigan, HDR Architecture created a multi-attribute Environmentally Preferable Purchasing Furniture, Furnishings and Equipment Initiative (EPP FF&E Initiative) to characterize how FF&E products for Metro would comply with LEED, *Green Guide for Health Care* and other environmentally-focused programs and satisfy the requirements to meet GGHC v2.2 Materials & Resources Credits 5.2 & 5.3 and GGHC v2.2 Environmentally Preferable Purchasing Credit 5.

A matrix was created to focus on the attributes of specific products. Among the characteristics evaluated were:

- Salvaged, refurbished or reused materials

¹ Mike Norbut, "Leasing market growing for health care equipment," *AMNews*, December 19, 2005, <http://www.ama-assn.org/amednews/2005/12/19/bisc1219.htm>.

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- Recycled content
- Assembled within 500 miles of project site
- Manufactured from materials or contains materials that are harvested within a ten year cycle
- Manufactured with wood products that are FSC (Forest Stewardship Council) certified
- Contains no chlorinated compounds such as Polyvinyl chloride, Chlorinated polyethylene, Chlorinated polyvinyl chloride, Chlorosulfonated polyethylene, Neoprene, lead, mercury, cadmium, or chrome plated finishes
- A manufacturer published policy regarding: minimizing packaging and disassembly procedures, recycling and/or take back initiatives, or product stewardship programs
- Manufactured with sealants and adhesives that: 1) comply with South Coast Air Quality Management District (SCAQMD) Rule 1168; 2) contain aerosol adhesives meeting Green Seal Standard GS-36 requirements; and, 3) all adhesives and sealants contain no carcinogen or reproductive toxicants as defined by California Proposition 65
- Contains no added urea-formaldehyde resins in insulation, composite wood and agrifiber products, including core materials
- Contains no Polybrominated diphenyl ethers (PBDE), Perfluorooctanoic acid (PFOA), Urea formaldehyde or Phthalate plasticizers
- The manufacturer has a published environmental policy
- The manufacturer has invested in Life Cycle Analyses for products

Metro and HDR reviewed a wide array of furniture and furnishings systems and manufacturers in accordance with the EPP FF&E protocol. Internal research found that the EPP FF&E Initiative did not carry a premium. Instead, considerations outside the environmentally preferable purchasing criteria were more often the cause of price premiums than environmental criteria.

Resources

In addition to the resources noted in the Green Guide for Health Care, the following may offer additional guidance:

Forest Stewardship Council, <http://www.fscus.org>

GREENGUARD Environmental Institute, <http://www.greenguard.org>

Green Seal, <http://www.green seal.org>

Pacific Northwest Pollution Prevention Resource Center (PPRC), <http://www.pprc.org>

The Pharos Project, <http://www.pharosproject.net/>

South Coast Air Quality Management District (SCAQMD), <http://www.aqmd.gov/>

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