

## **Eco-Conscious Products**

## Safe and environmentally friendly products

Okamura's environmental priorities in product design and assess-ment ensure the delivery of safe, eco-conscious products that give consumers peace of mind.

## A harmony of design, ecology, and economy

Okamura reduces raw material inputs during manufacture by analyzing finite elements with CAE and adopting other leading-edge methods. We harmonize design, ecology, and economy.

## Keeping clean air

The furniture is a critical part of any office space. This is another factor that motivates Okamura to protect the air quality of offices by positively using raw materials and paints free of volatile organic compounds (VOCs).

## Designs for easier reuse and recycling after use

Okamura designs products that can be easily broken down into homogeneous materials to facilitate the reuse of parts recovered from post-use products and material recycling. The materials used in major components are clearly identified.

### **Developing eco-conscious products**

Customer needs Social requirements Regulations Industrial standards

#### Our responsibility

Motto
"Quality pays for itself

Long-term environmental vision GREEN WAVE 2010 Action principles

### Product planning assessment

- Functions, performance, design
- Product safety
- Environmental consciousness
- Price
- Responses to regulations

### Product assessmen

- Material selection
- Efficiency in material use
- Energy efficiency
- Ease of disassembly
- Recyclability

### Eco-conscious production

- Conserving energy
- Mitigating harmful emissions
- Zero emissions

### Requirements in product design

- Conserving resources and reducing volume
- Using recycled materials
- Reusing materials and product parts
- Ease of recycling
- Sound air quality
- Product safety
- Reduced packaging materials
- Information disclosure

### Design for the environment



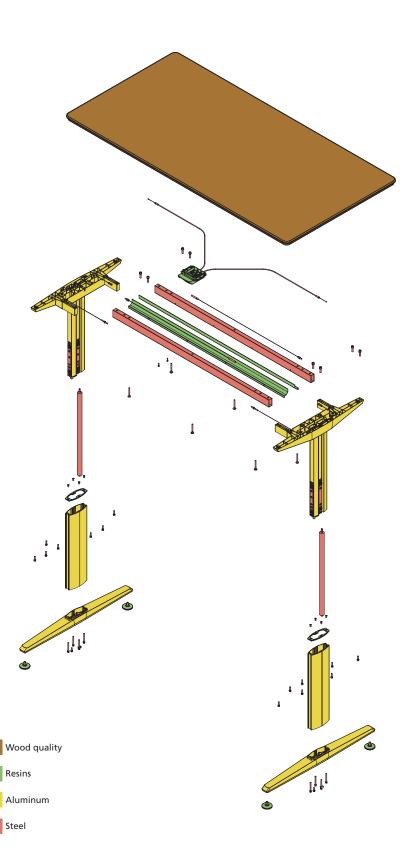
Liftio's aluminum base, a design based on a simulated analysis of finite elements, bespeaks the outstanding efforts behind Okamura's eco-conscious designs. Okamura's product developers optimize the use of resources by minimizing the amounts of materials used without sacrificing the outstanding quality, strength, and safety of the products.

### Product testing

- Measuring the volumes of VOCs emitted
- Testing durability and load bearing strength
- Testing stability
- Testing for transport
- Measuring the volumes of specific harmful substances



## **Materials & Recycling**



## Total control of every material used

Okamura collects thorough information on the materials, surface finishing methods, and other aspects of the parts used in its products, from the main components of its office equipment to individual screws. Detailed data on materials are provided upon request.

## Recycled materials: 50%

Recycled materials are used in aluminum and wood quality parts. These materials make up about 50% by product weight.

## Recyclability:

44%

With future recyclability firmly in mind during the design stage, we use homogeneous materials as much as possible. After use, our products can be collected and disassembled into homogeneous materials.

### ■Wood

In deference to the ecology of the earth's forests, Okamura does not use wood from illegally felled trees. We efficiently make use of wood only from properly managed forests. We have stipulated a wood-use policy that promotes the preservation and sustainment of the diversity of life on our planet, and are actively involved in expanding the use of sustainably harvested wood and wood from certified forests.



### Aluminum

Recovered aluminum is processed into a recycled form by alloy manufacturers and later into aluminum. Energy consumption can be reduced by 97% by generating recycled metal from recovered aluminum rather than creating aluminum from its source material bauxite.



### Indicating materials

Okamura indicates the materials used to facilitate recycling after use.





## **Reducing Chemicals**

## Reducing VOCs to safeguard health

Okamura minimizes the use of formaldehyde, toluene, xylene, and other VOCs, which can result in sick building syndrome and allergic dermatitis. To cite just one example, the snugly fitting backrest and seat meshes of Liftio were accomplished using an original design requiring a minimal amount of adhesive. Environmental load can be reduced while achieving outstanding comfort and strength.

### Reductions in VOCs

Toluene

Xylene

Formaldehyde

Aldehydes

4-phenylcyclohexene

## Minimizing environmental load

Amid calls to limit the use of the earth's resources, the reuse and recycling of post-use products are now global agendas. To ensure safe and sure progress in recycling, manufacturers must limit the use of substances with environmental loads. The latest round of enhancements in the regulatory framework started with the European Parliament's Restriction of Hazardous Substances (RoHS) directive. Though office furniture is not currently included among the targets of this regime, Okamura is working to reduce substances with environmental impacts in response to customer demand and in anticipation of future legislation.

### Reducing substances with environmental load

Lead

Mercury

Cadmium

Chromium VI

PBB (Polybrominated biphenyl)

PBDE

(Polybrominated diphenyl ether)

Cleared standard values\*1 based on the RoHS directive\*2



the use of hazardous substances in electronic and electrical equipment.



# **LEED Credit Summary**

Program	Category	Item		Contribution	Point of contribution
LEED 2009 for Commercial Interiors	Materials & Resources	MR 3.2	Resource Reuse	This product (Liftio) is designed to be refurbished and easy replacement. And it can be used any longer by having proper maintenance. Product can contribute to the this point by reusing. In Japan, Okamura has a service network by its subsidary, Okamura Support and Service.	1
		MR 4	Recycled content	50.5% (1/2Pre-Consumer: 0.5%, Post-Consumer: 50.2%)	1-2
		MR 5	Regional materials	Assembled in Takahata town, Yamagata, Japan. Please contact us in case of the delivery outside of Japan.	1-2
	Indoor Environmental Quality	ID 1	Innovation in design	High percentage of recycled content.	1-5
LEED 2009 for New Construction and Major Renovations	Materials & Resources	MR 3	Material Reuse	This product (Liftio) is designed to be refurbished and easy replacement. And it can be used any longer by having proper maintenance. Product can contribute to the this point by reusing. In Japan, Okamura has a service network by its subsidary, Okamura Support and Service.	1-2
		MR 4	Recycled content	50.5% (1/2Pre-Consumer: 0.5%, Post-Consumer: 50.2%)	1-2
LEED 2009 for Existing Buildings, Operations and Maintenance	Materials & Resources	MR 1	Substainable Purchasing -Ongoing Consumables	50.5% (1/2Pre-Consumer: 0.5%, Post-Consumer: 50.2%)	1
		MR 2	Substainable Purchasing -Durable Goods		1-2



## **Global Sales Network**





For inquiries and consultation requests:

Visit the Okamura website for the latest updates on Okamura products. http://www.okamura.jp/

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