



Reuse of Office Furniture – Incorporation into the 'Quick Wins' criteria

A study of the market potential for reused and remanufactured office furniture in the UK

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Glossary

BFM	The association for British Furniture Manufacturers
CPET	Central Point of Expertise on Timber
CRR	Centre for Remanufacturing and Reuse
Defra	Department for Environment, Food and Rural Affairs
EoL	End-of-Life
EU	European Union
FLEGT	Forest Law Enforcement Governance and Trade
FRN	Furniture Reuse Network
GPP	Green Public Procurement
OEM	Original Equipment Manufacturer
OFFMA	Office Furniture and Filing Manufacturers Association
SCP	Sustainable Consumption and Production
UNEP	United Nations Environment Programme



1 Scope and Objectives

This report is part of a project run by the Centre for Remanufacturing and Reuse, evaluating a number of key issues and opportunities in increasing the reuse of office furniture. Projects include:

- Logistics for reuse and remanufacture
- Rental
- Government procurement
- Design for remanufacture
- Third sector market study
- Environmental benefits and market.

This report aims to determine the furniture industry's capability incorporate reused office furniture as part of a package of options for procurers. As well as gaining an understanding of the size of the industry, different business models will be assessed and the barriers to different models ascertained.

Using this information, recommendations will be made regarding feasibility of incorporation of remanufacturing and/or reuse into the 'Buy Sustainable – Quick Wins' procurement specifications for office furniture.



2 Project Background

The office furniture industry in the UK is valued at approximately £680 million per year. Government procurement accounts for 9.6% of this market (£65 million).^a Although there are several statistics in this area, the accuracy of the actual spend is in doubt because both the procurers' definition of 'furniture', and which levels of Government are included within procurement details, vary widely. Defra estimated the value of Government spend on furniture across departments to be £1.2 billion at the last audit in 2004^b, though no further breakdown of categories was recorded.

Using industry estimates, total office furniture consumption in the UK is between 165,000 and 200,000 tonnes per year. If the Government's share of tonnage is equivalent to its share of spend, then the UK Government procures between 15,800 and 19,200 tonnes of office furniture per year.

Office furniture has a typical service life of 9 to 12 years, but is often replaced due to aesthetic and corporate reasons, not through loss of functionality. Hence most items are replaced on an entire-office basis, rather than individual pieces being replaced. Generally, the replaced items are sent to landfill.

Furniture's environmental impact largely occurs during manufacture and disposal (in particular the production and treatment of raw materials used).^c Any extension to the product's life will reduce its overall impact. A typical bill of materials includes metals, wood, plastic and textiles. The recovery of these can lead to reduced economic and environmental cost, with claims of up to 95% of energy and natural resources conserved over the manufacturing process.^d It is environmentally beneficial to encourage use of recycled content and recyclability of products; however, reuse and remanufacture are situated higher than recycling on the 'waste hierarchy' and typically offer greater environmental benefits due to the retention of the embodied energy within the product itself.

^a Industry estimation – including BFM and OFFMA.

^b Defra (2008) 'Progress Report on Sustainable Products and Materials'

^c European Commission Green Public Procurement (GPP) Training Toolkit

^d <http://kwd.what-if.com/environmental.html>



3 Procurement Policy

European public authorities are responsible for spending around 16% of the EU gross domestic product (GDP) on goods and services each year.^e The significant impact of these purchases has led the EU to launch the Green Public Procurement (GPP) strategy, which outlines sustainable options and obligations for purchasing certain product groups.

In the UK, the Government is the country's largest purchaser of goods and services, with a total spend across all departments of £150 billion.^f The national strategy on sustainable consumption and production (SCP) covers a number of themes, including sustainable consumption, environmental performance and competitiveness of business. The 'Buy Sustainable – Quick Wins' list is a set of standards developed for procurers for common products. These are chosen for their financial and environmental impacts, as well as political aspects.^g Currently products covered include paper, electrical goods, office machinery and furniture.

The Quick Wins list includes both mandatory obligations, which are a minimum requirement, and a best practice set of specifications, which are more difficult to attain, but that are only required on a discretionary basis. It is hoped that the best practice standards will become mandatory over time, depending on the product group and specific item. The current minimum obligation for furniture only relates to wooden furniture, and does not address use or end-of-life (EoL) of the product:

'Timber must be purchased in accordance with UK timber procurement policy -

Only timber and timber products originating either from independently verified legal and sustainable sources or from a licensed Forest Law Enforcement Governance and Trade (FLEGT) partner can be purchased'

This is in line with the CPET (Central Point of Expertise on Timber) guidelines set out for public procurement of timber.^h

Current best practice criteria are the same as those for furniture procurement defined in the EU GPP comprehensive criteria. Whilst these do take other aspects of impact (such as non wood-based materials, additives, packaging and

^e <http://ec.europa.eu/environment>

^f BFM, 'Zero Emissions from office, contract and kitchen furniture' (2008)

^g www.defra.gov.uk/sustainable/government/what/priority/consumption-production/index.htm#quickWins

^h UK Government Timber Procurement Advice Note, 2009



recycled content) into consideration, there is no specification relevant to remanufacture or reuse of furniture.

A recent report by the United Nations Environment Programme (UNEP) gave recommendations for procurement of office furniture. The focus was on disposal, with criteria suggested for ease of disassembly, repair and maintenance, and other life span extension factors.ⁱ

ⁱ UNEP, 'Sustainable procurement guidelines for office furniture' (2009)



4 Working Method

An internet and literature review was performed, with focus on key industry members and previous research into sustainable practice. Different known models for reuse were then assessed, and their financial and environmental feasibility evaluated.

A workshop of a consortium of industry stakeholders (including office furniture manufacturers, remanufacturers, purchasers, trade bodies, and facility managers) was held to consider potential options for Quick Wins specifications.

There are around 7,500 furniture manufacturers operating in the UK (of which 13% offer office furniture^j), though the industry is dominated by several large manufacturers. 31 of these key UK-based original equipment manufacturers (OEMs) were contacted. The focus was on current Government suppliers, but other manufacturers were also contacted to ensure a rounded industry view. 21 companies responded, and these were interviewed regarding recovery of the products they produced.

To gain an overview of the market, a number of other stakeholders were also contacted including trade associations, charities that offer furniture recovery, commercial distributors, and commercial remanufacturers and refurbishers.

^j Entec, 'Baseline for public procurement of furniture' (2009)



5 Market Situation

In the UK, there is sparse business activity relating to the remanufacture of office furniture on a commercial basis, with the largest known remanufacturers operating in the third sector. Those manufacturers who do remanufacture are typically involved on a small scale, for example remanufacturing faulty products or those damaged during transportation. Due to its size and fragmented nature, it is difficult accurately to quantify the level of commercial office furniture reuse.

Where reuse is offered by manufacturers, it is common for them to partner with charity organisations to enable reuse and sustainable disposal of office furniture. The Furniture Reuse Network (FRN) stated that market for secondary furniture is currently stagnant, so that most recovered items are either sent overseas or donated to educational facilities in the UK. Of their members, 88 organisations collect office furniture at some level, with around 350,000 pieces recovered annually. Greenworks is the largest operator, collecting approximately two thirds of all members' total recovery of office furniture. From Greenworks' figures and this market share, collections by FRN members are believed to be around 9,000 tonnes in 2008, with significantly less than 1,000 tonnes being remanufactured. The total collected for reuse within corporations (in a financially profitable manner) is believed to be negligible. Hence the total amount of office furniture reused (largely in the secondary market) is estimated at 10,000 tonnes per year.^k

This figure amounts to between 5-6% of the total office furniture consumed in the UK per annum. In addition to the estimated industry reuse statistics, ad-hoc reuse by cascading products to employees for home use is difficult to estimate but is likely to be a significant figure.

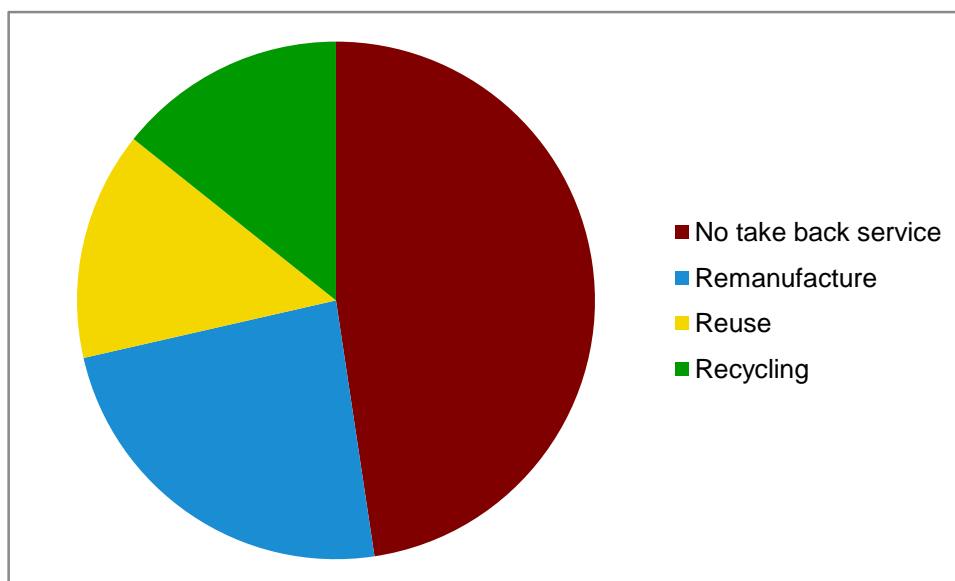
Figure 1, over, shows the results of our industry survey. A single OEM was identified as undertaking retrieval of EoL furniture for remanufacture in-house. An additional 21% had a third party remanufacturing on their behalf (in all cases this was Greenworks). It was apparent that the majority of responding manufacturers were keen on steps to reduce impact of their product at the EoL, with several offering life extension services such as on-site refurbishment or component replacement.

Over half (52%) of the organisations offered some sort of take-back service, but the returns typically went for recycling, or were donated to charity for reuse in less advantaged areas. Organisations that offered take-back did not disclose data on amounts of material recovered.

^k Industry estimates, 2009



Figure 1: Manufacturers services at end-of-life of product



Any additional cost associated with a take-back service was generally considered a disincentive. Although reuse is stated as the main recovery route for recovered furniture, the actual fate of the furniture depended on a number of criteria including demand, suitability and cost.

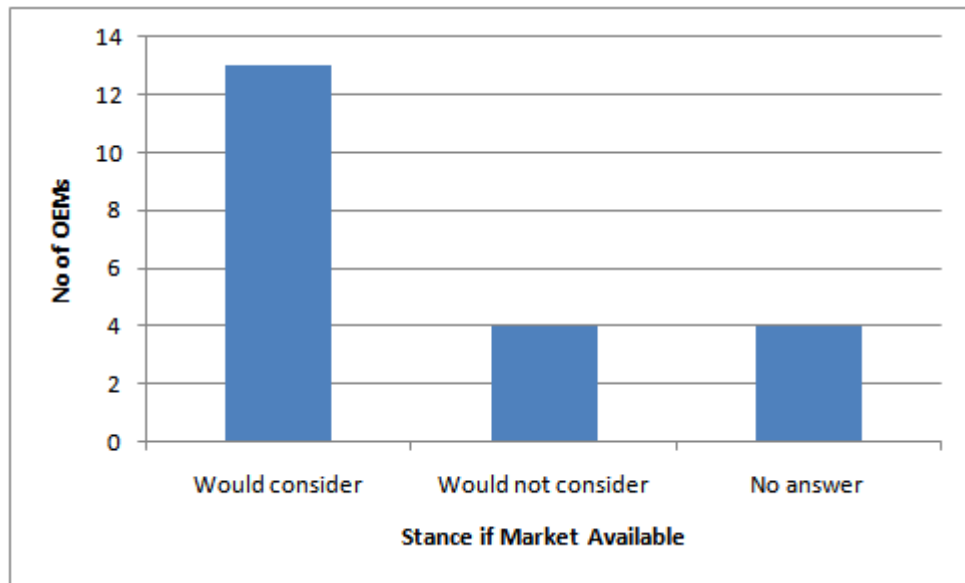
Additional costs are also incurred with take-back for remanufacture because of additional labour rates associated with the careful disassembly and shipping necessary to facilitate reuse. Conversely recycling costs can be minimised by breaking down pieces on site.

If a market were to become apparent, however, most companies would be willing to be involved (Figure 2, over). Of those companies surveyed, 61% stated that they 'would consider' taking back and reusing furniture if there were a market for reused products. Several OEMs highlighted that reused, refurbished or remanufactured furniture did not attract suitable value for the costs incurred during recovery: this was a key reason for reluctance to enter the marketplace. However, this can be viewed as positive for the growth of the market: should the Quick Wins specify reused or remanufactured furniture, the inherent value of the products could be realised, creating a financial incentive to recover these pieces for higher end applications.

Those who 'would not consider' remanufacturing were concerned with cannibalising their primary market, possibly reducing the higher profit margin obtained from sale of new. The extra costs incurred in collection may also result in an increase in new product costs, which would potentially threaten competitiveness. This was a minority view however, with market stimulation of reused believed to be a potential competitive advantage should it be written in to the Quick Wins.



Figure 2: Interest in remanufacture from OEMs, if a market available



6 Good Practice

Three models appeared to operating to the best standards:

6.1 Buy-back scheme

An OEM will typically offer a scheme whereby an old item is traded either for a newly remanufactured product, or for the same product after a full service and warranty is issued. Aeron Revive is an example of such a scheme. Offered by Hermann Miller on their Aeron chairs, Revive is a buy-back scheme which enables customers to trade in their old chairs. These are taken apart, cleaned, fitted with replacement parts as needed, and then sold back to the customer with a full three year warranty to guarantee quality. The Aeron chair itself is a highly distinctive 'premium' product, and the relatively high cost of new units mean that high quality refurbished units are in demand.

A similar scheme is offered by Wilkhahn, one of Europe's leading furniture manufacturers. It offers a 'trade-in' service for their products, and has found one of the strongest markets to be that of the custom designed or 'personal' chairs, which involve a personal attachment. This strongly contrasts with the concept that remanufactured furniture is in some way inferior to new.

Kentwood Office Furniture, an American company operating in several States in the USA, sells new, used or remanufactured office furniture. Its business model is well developed over three decades, and the value received from sales of remanufactured goods results in Kentwood buying old furniture from users.

6.2 In-house refurbishment

Furniture designed to be easily disassembled and repaired or refurbished can offer a significant life extension. By designing this into the product at early stages, the products can be serviced on site, with no need for costly transport fees and inconvenience. Large numbers of OEMs offer refurbishment as a service to augment their sales of new furniture, rather than as a stand alone package.

Silverline manufactures metal filing and storage cabinets. Its HD range offers a number of products with standard sized components that can be easily replaced. This enables a quick change of cosmetic features and products that give a refreshed look. Any damaged workings can normally be repaired, without the need to remove the product from the office environment.

Orangebox has a range of chairs (G64) that are designed for remanufacture. The chairs are designed to be easily taken apart and put back together with standard components. As with many furniture items, it is not loss of functionality that creates a customer's desire to replace the chair: more likely the aesthetic appeal has been dulled. Orangebox will visit the customer's site, remove any worn parts and replace with new. Other lines of chairs are also now being based on the same 'pieces' as those which make up the G64.



Not only does refurbishment extend the life of the furniture item, reducing cost to both the customer and to the environment, but it also creates a customer loyalty base.

6.3 Third party collection

A model utilised by half of all OEMs offering a take-back scheme is third party sub-contracting. This can be beneficial in several ways. By delegating the task, no extra resources are needed to enable removing, processing or reselling the old furniture. This is especially effective for manufacturers that are not based close to the site of recovery, and for those using separate distributors for supplying the new furniture. However, the model also removes the likelihood of being able to reuse the items in-house or operate any buy-back scheme.

The third party organisation most frequently used by the OEMs was Greenworks. However, there were examples of commercial companies operating similar schemes.

6.4 Summary

Although - historically - remanufacture of office furniture for resale into a corporate environment has been limited in the UK, opportunities are available. By stimulating market growth through enforced minimum procurement of reused products, the processes described here have potential to be highly successful business models.



7 Barriers

The interviews with OEMs, remanufacturers, suppliers, trade associations and other stakeholders highlighted several obstacles that face the reuse and remanufacture of office furniture. Many of these, however, are minor, and often stem from failures of projects in the past, or misconception of capability or availability.

7.1 Lack of demand

Most OEMs highlighted a 'limited market' as the main reason preventing the sale of reused office furniture. The limited market exists largely due to lack of consumer confidence in the quality of reused furniture. A lack of UK coverage for supplying reused furniture was also cited as a barrier. Conventional barriers to entry were also quoted, such as 'convenience' with corporate buyers using known suppliers.

7.2 Logistics

Current OEM storage capacity is limited, which in turn limits the capacity of industry to take back and store furniture for reuse. Most manufacturers believed that investment would be required for larger properties or extensions. This barrier may be slightly overstated, however. One successful remanufacturer claimed that, using current practices, only minor adjustments would be needed to remanufacture between 5 and 10% of total throughput.

Transportation of products back to the manufacturing site was seen as a difficulty, particularly if the manufacturer is not responsible for direct supply to customers. Contrastingly, this was also highlighted by a number of successful organisations as a benefit of operations, as supplying replacement furniture allows the empty vehicle to be utilised for collections on the return haul. To address this issue, there is an opportunity to form strategic partnerships with third parties to collect furniture on behalf of the remanufacturer.

7.3 Quality/technical

Obtaining suitable products at the point where they can be remanufactured is a key issue in developing a robust process for the reuse of office furniture. Several issues were highlighted, including inefficient collection leading to damage, transportation costs / removal haste resulting in furniture being destroyed before loading on the vehicle, and inability to identify furniture makes and models suitable for remanufacturing. It was believed that simple behavioural changes should be able to mitigate these problems.

Changing trends in office design was also mentioned, several companies highlighted the recent move from large footprint desks, to smaller desks partly due to the reduction in computer monitor size. These fashion changes have led to a difficulty in reselling larger desks directly. It is possible to resize desks for reuse either internally or externally but this requires support from interested



parties who may wish to reduce waste (rather than purely for financial gain). These changes are likely to be limited: trend analysis suggests that changes to working practices (e.g. hot-desking and home working) and technologies will drive the demand for modular design.¹

The suitability of the furniture for remanufacture at the end of its initial life can also be a barrier to reuse. One manufacturer admitted that the chairs they produced were created with low cost - not durability - in mind. Attempting to remanufacture unsuitable products may result in damaging consumer perception further and the cost involved to bring these items back up to a warrantable condition may be prohibitive.

7.4 Financial

The current (2008/9) economic situation is leading to heavy discounting on new products, which in turn is lowering the value of reused furniture. Clearly however, an economic recovery will lead to a strengthening market. Indeed, there are signs that there are greater opportunities for reuse and refurbishment of furniture during economic downturns, as companies strive to reduce spending and to extend the use of their current furniture stock.

Concerns were also raised by manufactures that offering sales of reused equipment may cannibalise sales of new equipment, and thus reduce overall profitability.

7.5 Other

When recovering furniture items at the end of their service life, it is not feasible accurately to list the coatings and other chemicals used in their production. This may present legal issues for the sale of reused products if new legislation has prohibited the sale of chemicals which were used in the originally production process of the reused item. This issue needs to be addressed to prevent well-meaning furniture reuse organisations being prosecuted under revised laws.

¹ CRR, 'Product Group Report: Office Furniture' (2007)



8 Recommendations

As can be seen from the previous section, there is a significant number of barriers to the inclusion of remanufacture/reuse within the 'Buy Sustainable – Quick Wins' criteria. Our investigation indicates that the main barrier to entry is the (current) limited demand for reused furniture. However it is likely that the industry will respond positively if there is a sustained and publicised demand for reused office furniture from within a large client such as the UK Government. The Quick Wins criteria could therefore be an ideal vehicle to stimulation the market for this nascent opportunity.

Although limited in the UK, there are examples of more prevalent use of remanufactured office furniture internationally. Anecdotally - according to Kentwood, a USA based furniture manufacture - remanufactured furniture accounts for over 9% of total commercial sales of the American furniture industry.

With this in mind, and considering the current low base of the furniture reuse industry in the UK, we recommend the following for inclusion within the Quick Wins criteria:

- All office furniture sales should include 5% by weight of 'reused' product, increasing incrementally to a cap of 15% by 2014. 'Reused product' can include:
 - Remanufactured products which are sold 'as new' with warranty.
 - Equipment which is reused or refurbished, either as whole units or individual components.
 - In-house reuse, where internally sourced units are refurbished.
 - Rental; these items may not be reused products, but it is likely that items will be continually reused over several contracts.

By specifying a relatively modest amount (5%), it is hoped that there will be sufficient capacity within the UK industry to meet these targets. We propose consulting the UK furniture industry to determine whether this level of activity is achievable. The decision on how the target is met shall be determined by the supplier: for example it may be more convenient for a supplier to reuse components rather than whole units as part of an order.

By setting future commitments, a clearly defined policy toward the reuse of office furniture will be demonstrated, enabling the industry to respond with confidence to the challenge of supplying reused furniture.

