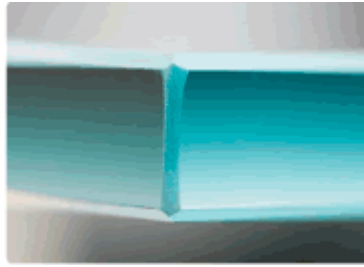


# Ska rating

Fitting Out Benchmark  
& Assessment Tool



Pilot Assessments

S

Skansen

FABER MAUNSELL | AECOM

 RICS



**[Corporate Occupier 1] offices fit-out – ‘Ska’ Rating & Benchmarking Pilot**

Handover Report

Skansen

February 2008

# Table of Contents

<b>1</b>	<b>Introduction .....</b>	<b>3</b>
1.1	Project background .....	3
1.3	Background to benchmarking .....	3
1.4	Outline of this report.....	4
<b>2</b>	<b>[Pilot 1] overview.....</b>	<b>5</b>
2.1	The building.....	5
2.2	Initial meeting .....	5
2.3	Scope of pilot .....	5
2.4	Construction site visit .....	5
<b>3</b>	<b>Benchmarking results .....</b>	<b>6</b>
3.1	Benchmark Rating & Label .....	6
3.2	Benchmarking of specific issues .....	7
<b>4</b>	<b>Feedback.....</b>	<b>8</b>
4.1	Notable environmental achievements .....	8
4.2	Opportunities for future improvement.....	8
<b>5</b>	<b>Benchmark scoping, scoring and rating.....</b>	<b>9</b>
5.1	Scoping and Credit Selection.....	9
5.2	Assessment.....	9
5.3	Scoring .....	9
<b>6</b>	<b>Pilot 1 – Lessons Learnt.....</b>	<b>13</b>
6.1	General Points .....	13
<b>Annex A</b>	<b>Scope of the [Pilot 1] fit-out .....</b>	<b>17</b>
<b>Annex B</b>	<b>Good Practice measures applicable to the [Pilot 1] fit-out .....</b>	<b>19</b>
<b>Annex C</b>	<b>Good Practice Measures Summary Tables .....</b>	<b>21</b>

# 1 Introduction

## 1.1 Project background

Having completed a Scoping Study as part of a “Research programme on the environmental impact of the fitting out of premises in the commercial sector”, Faber Maunsell has been commissioned by Skansen to undertake a number of Pilot Environmental Benchmarking assessments of office fit-outs. This report sets out the process, outcomes and lessons learned from the first Pilot assessment. The Pilot was carried out as part of Skansen’s fit-out of floors 2, 3 and 4 of [Pilot Building 1], for [Corporate Occupier 1].

The key expected outcome of the overall research programme is the production of “a practical benchmarking tool that can be used by the industry to assess the environmental impact of the fit-out process”. Associated guidance for tenants, landlords and their advisors on reducing the environmental impact of office fit-out would also be produced. The Scoping Study aimed to define the scope and possible methodology of an environmental benchmarking tool for office fit-out.

## 1.2 Aims and methodology of the Pilots

Following the Scoping Study the assessment and benchmarking methodology is now to be piloted by Faber Maunsell on a number of Skansen’s fit-out projects. As well as testing the proposed assessment process and benchmark scoring system, it is intended that each pilot will identify and focus on a small number of key issues and collect the detailed information that is required as the basis of good practice and assessment criteria. This will progressively build up the pool of available good practice measures to enable scoring and rating.

The intended process proposed for each pilot is as follows:

1. Hold an introductory meeting and gather information about the proposed fit-out.
2. Feed back suggested good practice measures to the designers, and the client via the Skansen project manager.
3. Visit the site during the works both to verify site practice and identify additional good practice opportunities.
4. Attend a post-project meeting to present feedback on the environmental assessment of the fit-out.

## 1.3 Background to benchmarking

Demand for improved environmental performance of buildings arises from a number of drivers. The precise detail and relative priority of these drivers is constantly changing. However the three broad types of drivers are well summarised in the title and content of a report, “Reputation; Risk and Reward” by the Sustainable Construction Task Force:

- Reputation  
Positive publicity; enhanced corporate image; competitive advantage; increased appeal to customers and investors.

- Risk  
Better management of environmental risks; fewer fines or breaches of regulation; preferential insurance premiums and reduced liabilities; “future-proofing” against changes in legal and other requirements.
- Reward  
Reduced operating costs (and capital costs in some circumstances); more satisfied staff and better retention; some suggestion of improved productivity; better community relations.

Benchmarking is an important tool for encouraging improved environmental performance. Increasing effort is being invested to improve the environmental performance of new buildings e.g. through energy efficient, low carbon design, water efficiency, selecting materials with high-recycled content and low environmental impact, requiring contractors to adopt good on-site practices, etc. However, the fit-out process is often overlooked, potentially squandering the benefits of environmental measures incorporated during design and construction of the shell and core.

An environmental benchmarking method offers many potential benefits, including:

- Driving improvement in environmental performance on individual fit-out projects by identifying the good practice opportunities, feeding these into the design and construction process along with relevant guidance, and providing a mechanism for verifying implementation.
- Providing a vehicle for developing and recognising good practice and encouraging its adoption in the industry.
- Enabling environmental improvements to be demonstrated and communicated to customers and shareholders.
- In the medium term, encouraging environmental improvements across the industry through competition by enabling project comparisons (e.g. through the development of benchmarking profiles).

The Skansen and RICS scoping study, the emerging benchmarking methodology, and the Pilot benchmarking assessment described in this report are important steps towards realising these benefits for the industry.

## 1.4

### Outline of this report

The following sections of this report cover:

- Section 2: [Pilot 1] overview
- Section 3: Benchmarking results
- Section 4: Feedback
- Section 5: Benchmark scoping, scoring and rating
- Section 6: [Pilot 1] – Lessons Learnt.

A number of annexes present further information that will aid understanding of the contents of the main report, as follows:

- Annex A Scope of the [Pilot 1] fit-out
- Annex B Good Practice measures applicable to the [Pilot 1] fit-out
- Annex C Good Practice Measures Summary Tables

## 2 [Pilot 1] overview

### 2.1 The building

The first pilot undertaken was the fit-out of the 2nd, 3rd and 4th floors of [Pilot Building 1] on behalf of [Corporate Occupier 1].

### 2.2 Initial meeting

An initial meeting was held and discussions on the scope of the fit-out project at [the building] established that the design and development were quite far progressed. Therefore, pre-assessment briefing would not be possible for this project.

### 2.3 Scope of pilot

Do to the late stage in the fit-out process it was agreed that the assessment would focus on assessing the design and practices of the fit-out as they stand and there would be little opportunity to inform the process to improve the environmental performance. However lessons can be learnt to inform process and the potential to improve environmental performance on future pilot projects.

The scope of [Pilot 1] was also to include the trialling of the credits developed at the scoping stage on a real fit-out project and to develop benchmarking credit criteria for the carpet tiles, raised floors and specification of low energy lighting.

### 2.4 Construction site visit

An on site team meeting was attended on 23 October 2006. A site walkover was undertaken following the meeting and the following elements of the fit-out were reviewed:

- the shell of the building prior to fit-out
- storage of the reused furniture;
- waste management practices;
- removal of the lighting system;
- early installation of access floor; and
- general observations of the early stages of the fit-out process.

Data requests in order to complete the environmental benchmarking of [Pilot 1] were discussed during the site walkover and issued to the team following the walkover / meeting.

# 3 Benchmarking results

This sections sets out the results of the benchmarking assessment. The Pilot assessments are a learning process. The scoring and rating system is still developing and criteria are not fully developed in all areas. Interpretation of the benchmarking results for the Pilot assessments should take this into account.

A benchmarking label or certificate would present the information shown in sections 3.1 and 3.2.

## 3.1 Benchmark Rating & Label



Office location: **[Pilot Building 1]**  
Central London

Client **[Corporate Occupier 1]**

Project team: **Skansen**

Benchmarking: Faber Maunsell



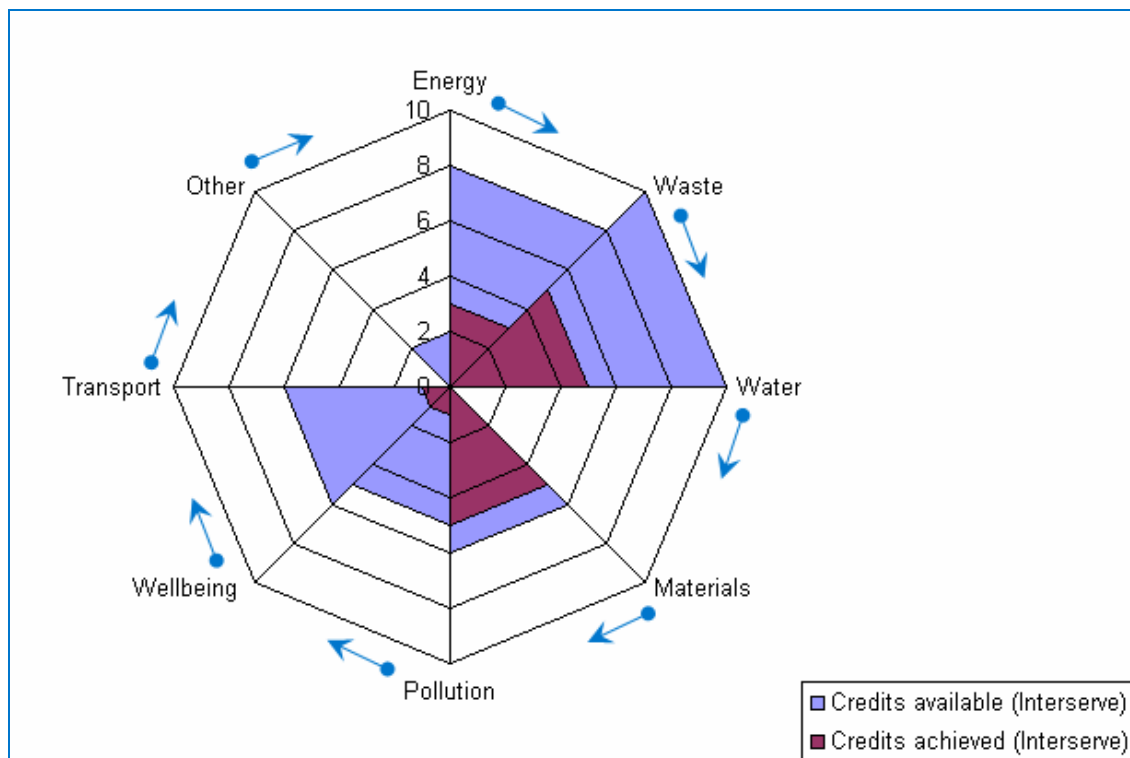
Status: **Verified on Handover**

Rating: **Improved**

	n/a	C	?
Assessment Stage	Initial (Design)	Final (Handover)	Post -occupancy

### 3.2 Benchmarking of specific issues

The diagram below shows the number of credits achieved in the assessment against each environmental issue relative to the number of good practice measures applicable to the project scope (i.e. the maximum number which could have been implemented).



This graphical method of presenting the detailed benchmarks has been replaced in later pilots in favour of the following table:

Environmental issues	Good practice measures			
	Total in pool	In scope	Pilot score	% achieved
Energy	17	8	3	38%
Waste	13	10	5	50%
Water	14	0	0	
Materials	24	9	4	44%
Pollution	8	5	1	20%
Wellbeing	14	6	1	17%
Transport	3	0	0	
Other	4	2	0	0%
<b>Total</b>	<b>97</b>	<b>40</b>	<b>14</b>	<b>35%</b>

# 4 Feedback

## 4.1 Notable environmental achievements

The key features of the fit-out which deliver environmental benefits are as follows:

- The reuse of desks;
- The reuse of office storage units;
- The reuse of office chairs;
- Reuse of blinds;
- Through the reuse of furniture environmental benefits include conservation of resources involved in the production of new office furniture and reduction in waste going to landfill;
- A comprehensive waste management and waste segregation system was observed to be in operation on site;
- Triple A-ratings are achieved by the dishwashers that have been included within the fit-out. The fridge achieves an energy rating of A (note appliances are not currently included in the scope of available good practice measures, which will be reviewed).

## 4.2 Opportunities for future improvement

Key areas where the fit-out could have been improved are as follows:

- Materials selection – great environmental gain is achievable through consideration of the following in the selection of materials to be incorporated as part of the fit-out:
  - Life cycle impact / Green Guide rating;
  - Recycled content.
- Lighting design – attention to delivering a low energy lighting solution, energy efficient lamps and greater local control by occupants.
- Re-commissioning of systems does not appear to be undertaken as part of the fit-out. Re-commissioning can be a very important stage which ensures that systems, services and the fit-out fabric operate as intended by the design team.

# 5 Benchmark scoping, scoring and rating

## 5.1 Scoping and Credit Selection

Based on review of information received and scope of the fit-out a tailored list of applicable Credits to assess [Pilot 1] were selected.

The selection process can be summarised as follows:

- Start with all Core Credits which are expected to be applicable to most fit-outs of any type;
- Add all additional Default Credits, which are expected to be applicable to most fit-outs of that particular type;
- Add any remaining Pool Credits that are judged to be applicable;
- Remove any Default Credits that are judged not to be applicable. (With the restriction that the total number of credits must be greater than the number of Core + Default Credits. This is to ensure a minimum number of credits in assessments for a given fit-out type. There might also be a limit on the number of Default Credits that can be removed to ensure a certain level of comparability between assessments.

The credit selection process leading to scoring is summarised in figure 5 below.

Annex A provides a short list of credits applicable to [Pilot 1].

## 5.2 Assessment

Using the data received from the design team, information gathered from the design team meetings and observation made during the site visit credits were awarded where good practice was observed in terms of the following aspects of the fit-out:

- Products selected and incorporated into the fit-out design;
- Equipment selected and incorporated into the fit-out; and
- Measures adopted and incorporated into either the construction or for use in the operational phase.

## 5.3 Scoring

The diagrams on the following pages illustrate the scoring and rating process.

**NOTE:** The alpha numeric codes in the boxes in the diagrams relate to the ID numbers for good practice measures, which can be found in Annex B and Annex C.

1. Start with the full list of good practice measures applicable to office fit-outs...

**Complete pool of good practice credits**

D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
D11	D12	D13	D14	D15	D16	D17	D18	D19	D20
D21	D22	D23	D24	D25	D26	D27	D28	D29	D30
D31	D32	D33	D34	D35	D36	D37	D38	D39	D40
D41	D42	D43	D44	D45	D46	D47	D48	D49	D50
D51	D52	D53	D54	D55	D56	M1	M2	M3	M4
M5	M6	M7	M8	M9	M10	M11	M12	M13	M14
M15	M16	M17	M18	M19	M20	E1	E2	E3	E4
E5	E6	E7	E8	E9	E10	E11	E12	E13	E14
E15	E16	E17	E18	P1	P2	P3			

The pool has 97 credits



2. Determine which are applicable to the scope of the fit-out being assessed...

**Fit-out of office space between tenancies**

D1	D2	<b>D3</b>	D4	<b>D5</b>	<b>D6</b>	D7	D8	D9	<b>D10</b>
<b>D11</b>	D12	D13	D14	D15	<b>D16</b>	<b>D17</b>	D18	<b>D19</b>	<b>D20</b>
D21	<b>D22</b>	D23	<b>D24</b>	D25	D26	<b>D27</b>	<b>D28</b>	<b>D29</b>	<b>D30</b>
<b>D31</b>	D32	<b>D33</b>	D34	D35	<b>D36</b>	D37	D38	D39	D40
D41	D42	D43	D44	<b>D45</b>	<b>D46</b>	<b>D47</b>	<b>D48</b>	<b>D49</b>	<b>D50</b>
<b>D51</b>	<b>D52</b>	<b>D53</b>	<b>D54</b>	<b>D55</b>	D56	M1	M2	M3	M4
M5	<b>M6</b>	<b>M7</b>	M8	<b>M9</b>	M10	M11	M12	M13	M14
M15	<b>M16</b>	<b>M17</b>	M18	M19	M20	E1	E2	<b>E3</b>	E4
<b>E5</b>	<b>E6</b>	<b>E7</b>	<b>E8</b>	E9	E10	E11	E12	E13	E14
E15	E16	E17	E18	P1	<b>P2</b>	P3			

This specific Pilot assessment has 40 Available Credits

- D3** pool credits included in this assessment
- D1 pool credits not included during scoping



3. This gives the shortlist of available credits (see Annex B)...

Fit-out of office space between tenancies

Available Credits

D3	D5	D6	D10	D11	D16	D17	D19	D20	D22
D24	D27	D28	D29	D30	D31	D33	D36	D45	D46
D47	D48	D49	D50	D51	D52	D53	D54	D55	M6
M7	M9	M16	M17	E3	E5	E6	E7	E8	P2

This specific Pilot assessment has 40 Available Credits

4. Identify the gateway credits. A minimum number of gateways will be needed to achieve each level of performance rating...

Fit-out of office space between tenancies

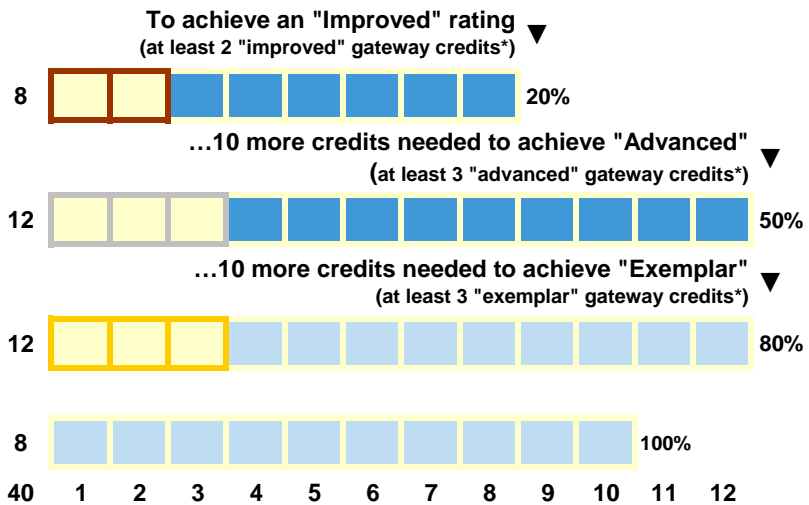
Gateway & Other Credits

D3	D5	D6	D10	D11	D16	D17	D19	D20	D22
D24	D27	D28	D29	D30	D31	D33	D36	D45	D46
D47	D48	D49	D50	D51	D52	D53	D54	D55	M6
M7	M9	M16	M17	E3	E5	E6	E7	E8	P2

in this example there are 8 improved, 6 advanced and 10 exemplar gateway credits

- 8 improved gateway credits
- 6 advanced gateway credits
- 10 exemplar gateway credits
- 16 other credits

5. Determine the number of gateway and other credits needed to achieve each rating. The boundaries are based on a percentage of the available credits...



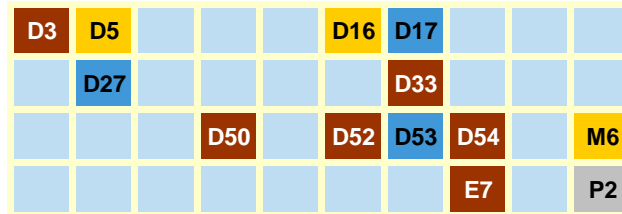
\* freedom to substitute "better" gateway credits to be decided later (currently allowed)



6. Assess and score the fit-out based on information collected during the project and determine the rating achieved...

**Fit-out of office space between tenancies**

**[Pilot 1] actual scoring**



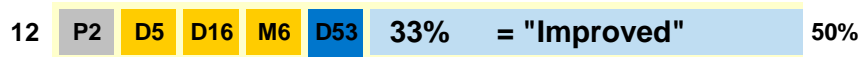
40 available credits including: 8 improved, 6 advanced and 10 exemplar gateway credits

- 6 improved gateway credits
  - 1 advanced gateway credits
  - 3 exemplar gateway credits
  - 3 other credits
- 13

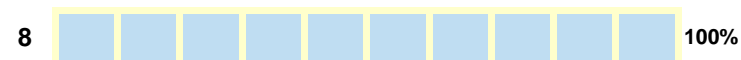
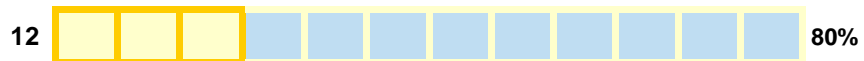
**"Improved" rating achieved ▼**



...10 more credits needed to achieve "Advanced" ▼



...10 more credits needed to achieve "Exemplar" ▼



40 1 2 3 4 5 6 7 8 9 10 11 12

\* freedom to substitute "better" gateway credits to be decided later (currently allowed)

[Pilot 1]	Good practice measures			
	Total in pool	In scope	Pilot score	% achieved
Total	97	46	14	35%

**NB.** There are likely to be changes to the benchmark scoring, rating and labelling systems as a result of the pilots. All presentation formats, rating boundaries, and results are provisional. Pilot ratings are not intended to be comparable with ratings under the final benchmarking system adopted. Stakeholders should take account of the aims of the pilot process when interpreting these benchmark results.

# 6 [Pilot 1] – Lessons Learnt

## 6.1 General Points

The following lessons were learnt from this first pilot project which can be used to inform and improve the environmental benchmarking methodology and the future pilots:

1. Hold meeting earlier in process to inform design – Providing input into the design process is within the scope of the pilots, but in this case Faber Maunsell's involvement started a little too late to influence the design. It would be of benefit on future projects to undertake an early meeting with the design team to highlight areas where their specification could be altered to achieve environmental improvements;
2. Undertake early kick-off meeting and development of information checklist - There would be considerable benefits to undertaking an early kick-off meeting with the design team. At this meeting the information requirements for the project could have been discussed and timescale for delivery of data set. As results of this pilot we recommend that a checklist of information requirements is prepared and distributed to the team at this first kick-off meeting. Responsibility and timescales for delivery could then be set to ensure a smoother transfer of information.
3. Involvement of third parties – The scope of the benchmarking process currently covers all the works to be undertaken as part of the fit-out. It has been identified that a number of the activities within the fit-out are being undertaken by third parties and are therefore outside the control of Skansen, for example the refurbishment of the toilets and the upgrading of the air conditioning systems. This leads to two issues which are:
  - Gathering information on the practices of the third parties, in order to benchmark and assess their practices;
  - The score of the overall fit-out, which currently reflect on Skansen as the fit-out contractor, is affected by the environmental performance and specification of the third works.

It is therefore recommended that third parties are brought into the process as early as possible and invited to the kick-off meeting. Alternatively a representative takes on a project management role to aid information transfer and guidance to the third party.

4. Waste Management – Comprehensive waste management practices were observed to be in operation on site during the visit on 23 October 2006. It should be noted that these practices were in operation despite no official Demolition Salvage Plan or Waste Minimisation Study being prepared to cover waste management. In addition all metal from the construction waste recycled as standard practice

Waste was collected from the main office floors and transferred to the underground car park where a number of car parking spaces were heras fenced off and stored for collection (Photo 1). The office chairs were observed to be stored within the office floors (see Photo 2).



**Photo 1: Waste storage area in car park**



**Photo 2: Storage of office chairs for reuse.**

The majority of waste removed from site was taken to Malbay Waste based in via skip.

Discussions with Malbay Waste confirmed the following disposal mechanisms for waste delivered to their facility:

<u>Waste</u>	<u>Disposal Mechanism</u>
All metal:	
- all wires and cabling	
- Aluminium e.g. reflectors behind lighting units to be removed	Recycled by Humphrey's Metals
- Metal casing for light fittings	
All wood products	Recycled / Chipped for fuel by London Waste at Edmonton
All hardcore (where relevant)	Taken to London Waste at Edmonton and reused
Plasterboard	Landfilled
Plastics	Landfilled
Carpet tile	Landfilled

This is the end of the main report. The following annexes set out supporting information generated during the scoping study.



# Annex A Scope of the [Pilot 1] fit-out

The fit out categories and definitions from the British Council for Offices Office Fit-out Guide were used as the basis for scoping. This defines:

- Shell and Core,
- Category A, and
- Category B works.

The scope of the benchmarking tool is intended to correspond to Category B or “Bespoke fit-out works”. The following diagram shows the scope of the [Pilot 1] fit-out in terms of Category B fit-out items:

			Pilot 1: [Corporate Occupier 1]	
Fit-out item ID	Category B fit-out Items	Fit out by:	Tenant	
		Type of fit-out:	Change of tenant	notes
1	upgrade to core finishes		n	
2	enhanced WC provision		n	
3	suspended ceiling upgrades/modifications and special area fitting out		n	
4	adaptation of raised floor systems		y	
5	office carpet		y	
6	furniture fixtures		y	
7	installation of internal partitioning		y	
8	office equipment		n	
9	floor finishes		n	
10	decoration and branding		y	
11	mechanical and electrical services tailoring and upgrades		y	
12	installation of below-floor power and data cabling to user accessible termination		y	
13	other systems, plant and equipment		y	vending & kitchen equipment
14	adptation of life safety systems		n	
15	installation of safety signage systems as required		y	access & wayfinding



## Annex B Good Practice measures applicable to the [Pilot 1] fit-out

The following good practice measures were judged to be applicable to the [Pilot 1] fit-out and form the basis for the benchmarking. This is a subset of measures relevant to office fit-out. The full list is included in Annex C.

Count	Credit ID	Issue (short)	Good practice measure	Type of Measure
1	D3	Energy	Efficient lighting system / Lighting Power Density	Design & construction
2	D5	Energy	High Frequency Lighting*	Design & construction
3	D6	Energy	Lighting Zones / Lighting controllability*	Design & construction
4	D10	Waste	Demolition salvage plan prepared prior to site work	Design & construction
5	D11	Waste	Waste minimisation study undertaken	Design & construction
6	D16	Materials	Use of recycled materials	Design & construction
7	D17	Pollution	Insulant ODP & GWP (CFC and HCFC free insulants)	Design & construction
8	D19	Pollution	Use of refrigerants with a GWP of less than 5 or no refrigerants	Design & construction
9	D20	Pollution	All refrigerants to have an ODP of zero or no refrigerants	Design & construction
10	D22	Pollution	Automatic refrigerant leak detection or no refrigerants	Design & construction
11	D24	Pollution	Noise generation (e.g. plant)	Design & construction
12	D27	Wellbeing	Daylight Glare Control	Design & construction
13	D28	Wellbeing	Electric Lighting Design / Lighting Levels	Design & construction
14	D29	Wellbeing	Thermal Zoning / Room temperature control	Design & construction
15	D30	Wellbeing	Air Supply Ductwork	Design & construction
16	D31	Wellbeing	Tenant Exhaust (e.g. for printing / photocopy rooms)	Design & construction
17	D33	Materials	Volatile Organic Compounds	Design & construction
18	D36	Wellbeing	Indoor Noise / Sound insulation / Sound absorption	Design & construction
19	D45	Other	Commissioning – Tenancy Fit-out Tuning / Seasonal Commissioning	Design & construction

Count	Credit ID	Issue (short)	Good practice measure	Type of Measure
20	D46	Other	Tenant Guide / Building User Guide	Design & construction
21	D47	Materials	Materials Specification (based on Green guide for materials specifications LCA)	Design & construction
22	D48	Materials	Sustainable Timber	Design & construction
23	D49	Waste	Floor Finishes	Design & construction
24	D50	Waste	Workstations	Design & construction
25	D51	Waste	Walls and Partitions	Design & construction
26	D52	Waste	Chairs	Design & construction
27	D53	Waste	Tables	Design & construction
28	D54	Waste	Storage	Design & construction
29	D55	Waste	Joinery	Design & construction
30	M6	Materials	soft floor covering – carpet	Materials
31	M7	Materials	substructural floor systems – raised floor	Materials
32	M9	Materials	paints	Materials
33	M16	Materials	doors	Materials
34	M17	Materials	kitchen cupboards & worktops	Materials
35	E3	Energy	heat pumps – air source: split and multisplit (incl VRF)	Equipment
36	E5	Energy	lighting – controls	Equipment
37	E6	Energy	lighting – fittings	Equipment
38	E7	Energy	lighting – lamps	Equipment
39	E8	Energy	pipework insulation	Equipment
40	P2	Waste	Waste quantity recycled	Performance

# Annex C Good Practice Measures Summary Tables

The following table lists all the environmental good practice measures currently considered applicable to the full range of office fit-out types. A subset of these measures will be applicable to any one fit-out project. There are four types of good practice measure:

1. Design and construction – process, design, and performance specification measures;
2. Materials – measures relating to product selection covering embodied lifetime environmental impacts of materials;
3. Equipment – measures relating to product selection covering in-use environmental impacts, which are usually energy and water use;
4. Performance – actual observable or recorded environmental performance outcomes (energy & water used, waste recycled)

The spreadsheet used as part of the benchmarking process includes notes of the evidence collected, details of the assessment criteria applied and also shows for each good practice measure whether it is a:

1. Quick win,
2. High impact credit,
3. Default credit (for each possible fit out type).

<b>Complete “pool” of Good Practice Measures for office fit-out (061214)</b>			
<b>Credit ID</b>	<b>Issue (short)</b>	<b>Good practice measure</b>	<b>Type of Measure</b>
D1	Energy	Electrical Sub-Metering	Design & construction
D2	Energy	Tenancy Sub-Metering	Design & construction
D3	Energy	Efficient lighting system / Lighting Power Density	Design & construction
D4	Energy	Daylighting*	Design & construction
D5	Energy	High Frequency Lighting*	Design & construction
D6	Energy	Lighting Zones / Lighting controllability*	Design & construction
D7	Energy	Water heating system (efficiency)	Design & construction
D8	Energy	HVAC system (efficiency)	Design & construction
D9	Waste	Recyclable Waste Storage	Design & construction

<b>Complete “pool” of Good Practice Measures for office fit-out (061214)</b>			
<b>Credit ID</b>	<b>Issue (short)</b>	<b>Good practice measure</b>	<b>Type of Measure</b>
D10	Waste	Demolition salvage plan prepared prior to site work	Design & construction
D11	Waste	Waste minimisation study undertaken	Design & construction
D12	Waste	Site Waste Management Plans SWMPs	Design & construction
D13	Water	Sanitary Supply Shut Off	Design & construction
D14	Water	Major Leak Detection	Design & construction
D15	Water	Fire System Water Consumption	Design & construction
D16	Materials	Use of recycled materials	Design & construction
D17	Pollution	Insulant ODP & GWP (CFC and HCFC free insulants)	Design & construction
D18	Pollution	Avoidance of CFCs and halons	Design & construction
D19	Pollution	Use of refrigerants with a GWP of less than 5 or no refrigerants	Design & construction
D20	Pollution	All refrigerants to have an ODP of zero or no refrigerants	Design & construction
D21	Pollution	Reduction of Light Pollution	Design & construction
D22	Pollution	Automatic refrigerant leak detection or no refrigerants	Design & construction
D23	Pollution	Refrigerant Recovery	Design & construction
D24	Pollution	Noise generation (e.g. plant)	Design & construction
D25	Wellbeing	DHW Legionellosis	Design & construction
D26	Wellbeing	View out & view of the sky	Design & construction
D27	Wellbeing	Daylight Glare Control	Design & construction
D28	Wellbeing	Electric Lighting Design / Lighting Levels	Design & construction
D29	Wellbeing	Thermal Zoning / Room temperature control	Design & construction
D30	Wellbeing	Air Supply Ductwork	Design & construction
D31	Wellbeing	Tenant Exhaust (e.g. for printing / photocopy rooms)	Design & construction
D32	Wellbeing	Thermal comfort assessment / modelling undertaken	Design & construction
D33	Materials	Volatile Organic Compounds	Design & construction

<b>Complete “pool” of Good Practice Measures for office fit-out (061214)</b>			
<b>Credit ID</b>	<b>Issue (short)</b>	<b>Good practice measure</b>	<b>Type of Measure</b>
D34	Wellbeing	Avoidance of legionella from cooling towers	Design & construction
D35	Wellbeing	All fresh air filtered to grade EU5 / Internal Air Pollution	Design & construction
D36	Wellbeing	Indoor Noise / Sound insulation / Sound absorption	Design & construction
D37	Wellbeing	Ventilation Rates / Air Change Effectiveness	Design & construction
D38	Wellbeing	Carbon Dioxide Monitoring and Control	Design & construction
D39	Transport	Cyclist Facilities: sheltered, secure locking points	Design & construction
D40	Transport	Cyclist Facilities: showers	Design & construction
D41	Transport	Cyclist Facilities: lockers	Design & construction
D42	Wellbeing	Indoor Plants	Design & construction
D43	Other	Considerate Constructor Scheme CCS (voluntary)	Design & construction
D44	Other	Tenancy Fit-out Commissioning / Commissioning Clauses / Commissioning Agent	Design & construction
D45	Other	Commissioning – Tenancy Fit-out Tuning / Seasonal Commissioning	Design & construction
D46	Other	Tenant Guide / Building User Guide	Design & construction
D47	Materials	Materials Specification (based on Green guide for materials specifications LCA)	Design & construction
D48	Materials	Sustainable Timber	Design & construction
D49	Waste	Floor Finishes	Design & construction
D50	Waste	Workstations	Design & construction
D51	Waste	Walls and Partitions	Design & construction
D52	Waste	Chairs	Design & construction
D53	Waste	Tables	Design & construction
D54	Waste	Storage	Design & construction
D55	Waste	Joinery	Design & construction
D56	Waste	Ceilings	Design & construction
M1	Materials	blocks	Materials

<b>Complete “pool” of Good Practice Measures for office fit-out (061214)</b>			
<b>Credit ID</b>	<b>Issue (short)</b>	<b>Good practice measure</b>	<b>Type of Measure</b>
M <sup>2</sup>	Materials	bricks	Materials
M <sup>3</sup>	Materials	insulation	Materials
M4	Materials	screed	Materials
M5	Materials	hard floor coverings	Materials
M6	Materials	soft floor covering – carpet	Materials
M7	Materials	substructural floor systems – raised floor	Materials
M8	Materials	glazed partitions	Materials
M9	Materials	paints	Materials
M10	Materials	polishes, stains & varnishes	Materials
M11	Materials	direct finished ceiling	Materials
M11	Materials	suspended ceiling systems	Materials
M12	Materials	chipboard, hardwood, MDF, plywood, softwood	Materials
M13	Materials	hard wallcovering	Materials
M14	Materials	wallpaper	Materials
M15	Materials	blinds/curtains	Materials
M16	Materials	doors	Materials
M17	Materials	kitchen cupboards & worktops	Materials
M18	Materials	desking	Materials
M19	Materials	partitions	Materials
M20	Materials	storage	Materials
E1	Energy	automatic monitoring and targeting	Equipment
E2	Energy	boilers – condensing economisers	Equipment
E2	Energy	boilers – flue gas economisers	Equipment
E2	Energy	boilers – gas fired condensing water heaters	Equipment
E2	Energy	boilers – heat recovery from boiler blowdown	Equipment

<b>Complete “pool” of Good Practice Measures for office fit-out (061214)</b>			
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E2	Energy	boilers – hot water boilers up to 400kW	Equipment
E2	Energy	boilers – optimising controllers	Equipment
E2	Energy	boilers – retrofit burner control systems	Equipment
E2	Energy	boilers – sequence controls	Equipment
E3	Energy	heat pumps – air source: gas engine driven split & multisplit (incl VRF)	Equipment
E3	Energy	heat pumps – air source: single duct	Equipment
E3	Energy	heat pumps – air source: packaged “double duct”	Equipment
E3	Energy	heat pumps – air source: split and multisplit (incl VRF)	Equipment
E4	Energy	HVAC zone controls	Equipment
E5	Energy	lighting – controls	Equipment
E6	Energy	lighting – fittings	Equipment
E7	Energy	lighting – lamps	Equipment
E8	Energy	pipework insulation	Equipment
E9	Water	flow controllers – flow restrictors	Equipment
E9	Water	flow controllers – control devices	Equipment
E10	Water	meters – flow meters	Equipment
E11	Water	meters – water management software	Equipment
E12	Water	leakage detection – data loggers	Equipment
E13	Water	leakage detection – leak warning devices	Equipment
E14	Water	leakage detection – pressure reducing valve controller	Equipment
E15	Water	efficient toilets – low flush toilets	Equipment
E16	Water	efficient toilets – urinal with integral controls	Equipment
E16	Water	efficient toilets – urinal controls	Equipment
E17	Water	efficient taps – spray	Equipment
E18	Water	efficient taps – automatic shut off	Equipment

<b>Complete “pool” of Good Practice Measures for office fit-out (061214)</b>			
<b>Credit ID</b>	<b>Issue (short)</b>	<b>Good practice measure</b>	<b>Type of Measure</b>
E18	Water	efficient taps – electromagnetically operated	Equipment
P1	Energy	Energy in use / CO <sub>2</sub> Emissions	Performance
P2	Waste	Waste quantity recycled	Performance
P3	Water	Water Consumption (including water efficiency devices / technologies and non-potable water)	Performance

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[Corporate Occupier 1] offices fit-out – 'Ska' Rating & Benchmarking Pilot

Rev No	Comments	Date
1	First Draft	13/12/06
2	Final Report	15/11/06
3	Revised Report	07/01/08
4	Final Pilot Report v3.2	11/2/08
5	Public Pilot Report	7/3/08

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