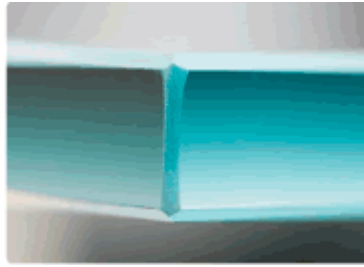


Ska rating

Fitting Out Benchmark
& Assessment Tool



Pilot Assessments

Skansen

FABER MAUNSELL | AECOM

 RICS



[Corporate Occupier 3] offices fit-out – ‘Ska’ Rating & Benchmarking Pilot

Handover Report

Skansen

February 2008

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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 third Pilot assessment. The Pilot was carried out as part of Skansen’s fit-out of floors 5 and 6 of [Pilot Building 3], for [Corporate Occupier 3].

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.

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 3] overview
- Section 3: Benchmarking results
- Section 4: Feedback
- Section 5: Benchmark scoping, scoring and rating
- Section 6: Pilot 3 – 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 [Pilot 3] fit-out
- Annex B Good Practice measures applicable to [Pilot 3] fit-out
- Annex C Good Practice Measures Summary Tables

2 [Pilot 3] overview

2.1 The building

The third pilot undertaken was the fit-out of the 5th and 6th floors of [Pilot Building 3], on behalf of [Corporate Occupier 3].

2.2 Initial meeting

An initial meeting held on the scope of the fit-out project at [Pilot Building 3] 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

Due 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.

The scope of [Pilot 3] was to include the trialling of the credits developed at the scoping stage on a real fit-out project.

2.4 Scope of [Pilot 3] fit-out

The fifth and sixth floors of [Pilot Building 3] are being fitted out by Skansen.

On the fifth floor, Skansen are doing a Category A and B fit-out. On the sixth floor they are only doing a Category B fit-out. The Category A fit-out has been completed by [the building owner]. As part of the tenancy agreement between [Corporate Occupier 3] and [the building owner], the Category A fit-out of the fifth floor has to match that already completed on the sixth floor.

The fit out of the two floors comprised the following elements

	<u>5th Floor</u>	<u>6th Floor</u>
Strip out	ceiling, carpets, partitions, data cables	No
lights and controls	yes	No
supplementary cooling	yes	yes
Blinds	yes	yes
pipework insulation	yes	No
raised floor	refurbished	No
floor finishes	Yes, new carpets and hard floor finishes	No
partitions	yes	yes
doors	yes	yes
kitchen	yes	yes

2.5 Construction site visit

An on site team meeting was attended on 22 June 2007. A site walkover was undertaken following the meeting and the following elements of the fit-out were reviewed:

- 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 the project 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 3]**
Central London

Client **[Corporate Occupier 3]**

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 table below shows the number of good practice measures implemented 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).

Environmental issues	Good practice measures			
	Total in pool	In scope	Pilot score	% achieved
Energy	17	8	4	50%
Waste	13	6	0	0%
Water	14	0	0	
Materials	24	15	5	33%
Pollution	8	3	2	67%
Wellbeing	14	5	2	40%
Transport	3	0	0	
Other	4	1	0	0%
Total	97	38	13	34%

4 Feedback

4.1 Notable environmental achievements

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

- The reuse of the raised floor;
- The use of materials selected on the basis of environmental preference;
- The installation of an energy efficient lighting system.

4.2 Opportunities for future improvement

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

- Demolition and waste – the production of demolition and waste management plans, and working with the waste contractor to increase recycling rates and reduce waste sent to landfill;
- Materials selection –environmental outcomes can be improved 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.
- The specification of energy efficient lamps.

5 Benchmark scoping, scoring and rating

5.1 Scoping

Based on review of information gathered at the initial meeting and received subsequently, a tailored list of good practice measures applicable to [Pilot 3] was drawn up.

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 Default Credits, which are expected to be applicable to most fit-outs of a particular type – in this case a Tenant’s Category B fit-out;
- Add any remaining Pool Credits that are judged to be applicable;
- Remove any Default Credits that are judged not to be applicable.

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

Annex A provides a shortlist of credits applicable to [Pilot 3].

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, points were awarded where good practice was observed in terms of the following aspects of the fit-out:

- Design and construction process;
- Equipment specified and incorporated into the fit-out; and
- Materials specified and incorporated into the fit-out design.

5.3 Scoring

The diagrams on the following pages illustrate the scoring and rating process for a hypothetical pilot assessment.

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	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			

This specific Pilot assessment has 38 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)...

Available Credits

D3	D5	D6	D8	D9	D10	D11	D16	D17	D19
D24	D27	D28	D29	D31	D32	D33	D46	D47	D48
D49	D51	D56	M3	M5	M6	M7	M8	M9	M11
M12	M16	M17	M19	E5	E6	E7	E8		

This specific Pilot assessment has 38 Available Credits

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

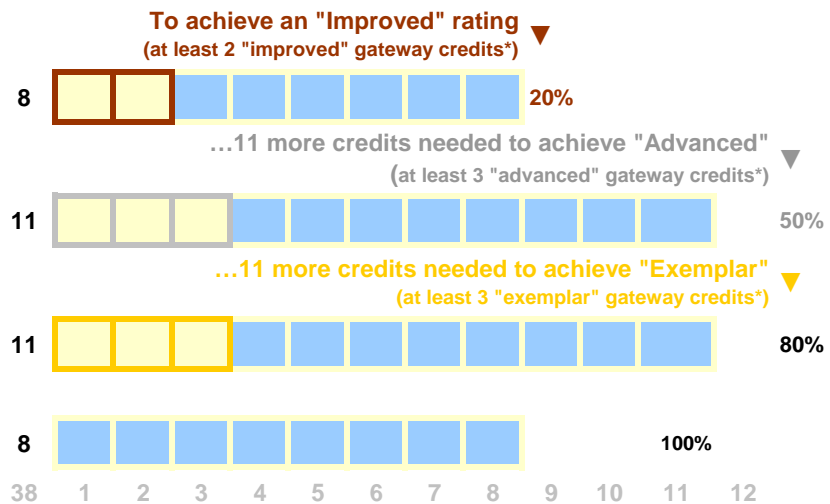
Gateway & Other Credits

D3	D5	D6	D8	D9	D10	D11	D16	D17	D19
D24	D27	D28	D29	D31	D32	D33	D46	D47	D48
D49	D51	D56	M3	M5	M6	M7	M8	M9	M11
M12	M16	M17	M19	E5	E6	E7	E8		

in this example there are 9 improved, 5 advanced and 12 exemplar gateway credits

- 9 improved gateway credits
- 5 advanced gateway credits
- 12 exemplar gateway credits
- 12 other credits

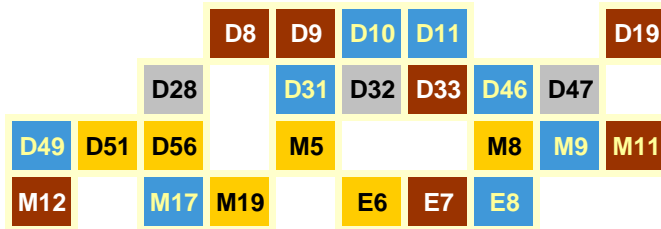
5. Determine the number of gateway and other credits needed to achieve each rating. The boundaries are based on a percentage of the available credits...



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 3] actual scoring



38 available credits including: 9 improved, 5 advanced and 12 exemplar gateway credits

- 2 improved gateway credits
- 2 advanced gateway credits
- 5 exemplar gateway credits
- 4 other credits

13

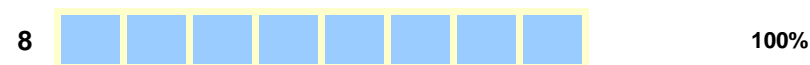
"Improved" rating achieved ▼



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



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



38 1 2 3 4 5 6 7 8 9 10 11 12

[Pilot 3]	Good practice measures			
	Total in pool	In scope	Pilot score	% achieved
Totals	97	38	13	34%
Rating	C – Improved			

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 3 – Lessons Learnt

6.1

General Points

The following lessons were learnt from this third 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. Waste Management – There was no documented evidence of waste management, although some segregation of waste was observed during the site visit, and it was stated that Skansen always recycles metal from the construction waste as standard practice. Skansen could develop a standard waste management strategy that would be applicable to all sites and this could form part of their contract with the waste contractor. This could include the requirement to recycle construction waste rather than send to land fill.

A demolition salvage plan should also be written prior to the start of demolition
4. Specification of products from the Energy Technology List (ETL) - The Government provides enhanced capital allowances for products that they deem be energy efficient. Of the elements assessed in this pilot three components were assessed as to whether they were on the ETL, as a means of demonstrating that they are energy efficient. These were: the split unit air-conditioning system; the lighting system, lamps, fittings and controls; and the pipework insulation. At the design stage it may be possible to specify that the products selected will be from the ETL list.

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

Annex A Scope of [Pilot 3] 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 [Pilot 3]:

			Pilot 3: [Corporate Occupier 3]			
			5 th Floor		6 th Floor	
Fit-out item ID	Fit-out item	Fit out by:	Tenant		Tenant	
		Type of fit-out:	Change of tenant	notes	Change of tenant	notes
A1	finishes to cores		Y		N	
A2	fully fitted out WCs		N		N	
A3	suspended ceilings		Y		N	
A4	raised floors		Y		N	
A5	office carpet		Y		N	
A6	basic mechanical and electrical services		N		N	
A7	distributed power to each floor (but not to floor		N		N	
A8	functional life safety infrastructure		N		N	
B1	upgrade to core finishes		N		N	
B2	enhanced WC provision		N		N	
B3	suspended ceiling upgrades/modifications and special		Y		Y	
B4	adaptation of raised floor systems		Y		N	
B5	office carpet		Y		N	
B6	furniture fixtures		N		N	
B7	installation of internal partitioning		Y		Y	
B8	office equipment		N		N	
B9	floor finishes		Y		Y	
B10	decoration and branding		Y		N	
B11	mechanical and electrical services tailoring and upgrades		Y		Y	
B12	installation of below-floor power and data cabling to user		Y		Y	
B13	other systems, plant and equipment		Y	new A/C unit, new VAV and FCU unit; kitchen	Y	new A/C unit, new VAV and FCU unit; tea point
B14	adptation of life safety systems		N		N	
B15	installation of safety signage systems as required		N		N	

Annex B Good Practice measures applicable to [Pilot 3] fit-out

The following good practice measures were judged to be applicable to [Pilot 3] 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.

This table shows the measures and how they were assessed.

Measure ID	Good Practice Measure	Implemented?	5 th Floor assessment comment	6 th Floor assessment comment
D3	Efficient lighting system / Lighting Power Density	Y	Drawing "117023101 5th floor lighting.pdf" gives the location of all the lights; Drawing "5-C-05: ceilings, prepared by Griffiths design consulting" was used to calculate the floor area. The efficiency of the lighting scheme comes up as 9.6w/m2 so this credit is achieved.	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
D5	High Frequency Lighting*	Y	The document "[Pilot Building 2] Specification M&E Services" states that all fluorescent luminaries will be high frequency with electronic ballast.	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
D6	Lighting Zones / Lighting controllability*	Y	The electrical drawings by PHP electrics are showing that there are PIR sensors and light controllers for banks of 4-6 lights: Note the BREEAM criteria is that the lights should be controlled per bank of 4 desks, but desk layout is not shown on the lighting diagrams (ref: 8785/E01B and 8785/E02A)	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
D8	HVAC system (efficiency)	N	Skansen are installing supplementary cooling for the meeting rooms. This is in the form of split units with condensers on the roof. The main A/C controls are from the BMS system. There are sensors on all the floors, and the temperature will be pre-set to 21 ^o and the occupants cannot change. It can only be done by central management, Norland. This was the original building design. The additional cooling in the meeting rooms is controllable by the occupants.[Site visit notes 22.06.2007] There is no additional information about these in the info supplied by Steve Holt.	
D9	Recyclable Waste Storage	N	space for this is not shown on any of the plans that are supplied.	space for this is not shown on any of the plans that are supplied.
D10	Demolition salvage plan prepared prior to site work	N	No information supplied. The Employers Requirements "Section A34 Security/safety/protection (p53): rubbish disposal." There are no obligations on the contractor other than to remove all rubbish.	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
D11	Waste minimisation plan	N	Skansen has a policy of segregating metals on site; it is just Skansen practice, because of the price of recycled metal. But this policy is not documented (site visit notes). Credit cannot be awarded because of lack of documentation	Not applicable, as Skansen are only doing the CAT B fit out on this floor.

Measure ID	Good Practice Measure	Implemented?	5 th Floor assessment comment	6 th Floor assessment comment
D16	Use of recycled materials	N	<p>The products that are being installed/changed: floor, ceiling, doors, partitions, kitchens, carpets, M&E insulation, Blinds. These are assessed for recycled content:</p> <p>The raised floors are being retained with 2 changes ;The raised floor in the old comms room was higher than the rest of the floor. This is been taken out and lowered to same height as rest of floor. (about 10% of the floor area); By the lift lobby on the 5th floor, they want slate tiles.</p> <p>The raised floor system is very old and no longer produced. They have retained the floor but have had to remove floor tiles which have had grommets (holes) in them for cabling. They have had to acquire old stock or refurbished stock, as new tiles to match are no longer produced. These floor tiles are made of cement dust. As most of the floor is being replaced from old stock or refurbished tiles, then the floor can be considered as recycled.</p> <p>The Employers requirements state that timber skirting must be put to one side for re-use elsewhere in building.</p> <p>The mineral wool insulation uses recycled glass.</p> <p>Measure this on the cost of the materials purchased. This information has not been supplied: but it is unlikely that the recycled floors form the majority of the product cost so do not award this credit.</p>	<p>The products that are being installed/changed: doors, partitions, kitchens, Blinds. These are assessed for recycled content: There is no information on the recycled content of these materials.</p>
D17	Insulant ODP & GWP (CFC and HCFC free insulants)	Y	<p>At the site visit [22.06.2007] it was stated that there is no change to the building fabric, just Lagging for M&E.</p> <p>But in the Specifications provided there is insulation in the partitions. Specification K10 Plasterboard Dry lining partitions states that the insulant for "METAL STUD PARTITIONS TO GENERAL AREAS " is Gyproc gywall with "ISOWOOL 1200 FIXED AS CLAUSE K10 495", same for plywood lined metal stud partitions. No insulation in suspended ceiling. Although it then mentions "MINERAL WOOL INSULATION ACROSS METAL SUSPENDED CEILING FRAMING". Downloaded specification for ISOWool from British Gypsum Website [http://www.british-gypsum.bpb.com/pdf/wb_pr%20insulation_07_05.pdf]. It is glass wool and it states that it is CFC and HCFC free but does not explicitly state whether it is low GWP.</p> <p>The photographs taken at the site visit for the 6th floor show a thermal insulation product as ISOVER: the isowool specification states that it is a British Gypusm-Isover product. The ISOVER website [http://www.isover.co.uk/article.asp?id=338] states that TS slabs have over 80% recycled content in them. This product is in rolls and is probably for the building services.</p> <p>Award this credit on the basis that the insulation used is mineral wool and therefore zero ODP and low GWP</p>	As for 5th Floor
D19	Use of refrigerants with a GWP of less than 5 or no refrigerants	N	<p>Skansen are installing supplementary cooling for the meeting rooms. This is in the form of split units with condensers on the roof. [Site visit notes 22.06.2007]. No information supplied by Steve Holt.</p>	As for 5th Floor
D24	Noise generation (e.g. plant)	Y	<p>From the site visit [22.06.2007]: The new split ACU units are acoustically screened.</p>	as 5th floor

Measure ID	Good Practice Measure	Implemented?	5 th Floor assessment comment	6 th Floor assessment comment
D27	Daylight Glare Control	Y	In the site visit [22.06.2007] Steve Holt said that blinds would be fitted to all windows. Note: they had not been fitted at the time of the visit. Nor has any information been provided about their specification. In the Employers requirements P96 there is mention of fitting blinds as specified (but we have not been provided with the N10 specification. Award credit as blinds are being fitted	as 5th floor
D28	Electric Lighting Design / Lighting Levels	N	no information supplied about lux levels	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
D29	Thermal Zoning / Room temperature control	Y	The main A/C controls are from the BMS system. There are sensors on all the floors, and the temperature will be pre-set to 21.0 and the occupants cannot change. It can only be done by central management, Norland. This was the original building design. The additional cooling in the meeting rooms is controllable by the occupants. Details from Site Visit [22.06.2007]. The credit should be awarded, as the scope is what Skansen has fitted and this is occupant controllable.	as 5th floor
D31	Tenant Exhaust (e.g. for printing / photocopy rooms)	N	It was stated at the site visit [22.06.2007] that the printers/photocopiers are in the open plan area and do not have separate extracts.	as 5th floor
D32	Thermal comfort assessment / modelling undertaken	N	Thermal comfort modelling has been done by the mechanical contractor: Steve will ask for a copy. But no supplementary cooling is being provided for the open plan area only for the meeting rooms. Client does not want extra cost. Thermal comfort modelling usually has to be done on fit outs as need to know if additional cooling is required. [Site Visit 22.06.2007] So if Steve supplies a copy of this should they get the credit??? As they are not providing additional cooling to the open plan area. Don't award at present	as 5th floor
D33	Volatile Organic Compounds	N	In this fit out the products likely to off-gas VOC's are paints, adhesives, carpets, MDF (in kitchen cabinets?) Paint is standard Dulux, no information about others, so do not award at present	In this fit out the products likely to off-gas VOC's are adhesives, MDF (in kitchen cabinets?) no information, so do not award at present
D46	Tenant Guide / Building User Guide	N	It was stated at the site visit [22.06.2007] that Skansen do not provide BUGs. But Skansen always provide training for new users on the systems that they have installed (eg aircon units, UPS) . Usually to the building manager. This is done on every fit out.	As for 5th Floor
D47	Materials Specification (based on Green guide for materials specifications LCA)	N	The products that are being installed/changed: suspended floor (A rated), ceiling (no), doors (A rated), partitions (no), kitchens (no), carpets (A rated), M&E insulation (A rated), hard flooring (no). The % costs of these products is not know, so the credit cannot be awarded.	The products that are being installed/changed: doors (A rated), partitions (no), kitchens (no). The % costs of these products is not know, so the credit cannot be awarded.

Measure ID	Good Practice Measure	Implemented?	5 th Floor assessment comment	6 th Floor assessment comment
D48	Sustainable Timber	Y	See M5: there is "2 LAYERS OF 18mm WBP PLYWOOD " under the slate floor. See M19: there is WBP Plywood in some of the partitions. See M16: doors. Specification "P20 UNFRAMED ISOLATED TRIMS/SKIRTINGS/SUNDRY ITEMS": MEDIUM DENSITY FIBRE BOARD FOR SKIRTINGS Employers Requirements: "Section A33 Quality Standards Control: Standards of Material and work (page 45). This section states that No Timber should be used "which is not obtained from a managed and regulated sustainable source." This credit should be awarded at the design stage.	As for 5th Floor
D49	Floor Finishes	N	carpets were taken out. They have waste transfer notes which we can have copies of. The recycling was done by the waste company, who has a waste carriers licence. Skansen normally audit the waste carrier. Have EWC numbers. Skansen segregated the metal and carpet on site. They do not document this policy of segregating metals on site. [site visit 22.06.2007] Credit not awarded at this stage as no proof of recycling.	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
D51	Walls and Partitions	N	partitions (plasterboard and metal stud). They have waste transfer notes which we can have copies of. The recycling was done by the waste company, who has a waste carriers licence. Credit not awarded at this stage as no proof of recycling.	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
D56	Ceilings	N	the metal ceiling (this was metal plank which was not 600mm square, so they took this out and the associated grid; it was in poor condition and unfashionable). They have waste transfer notes which we can have copies of (not yet supplied. The recycling was done by the waste company, who has a waste carriers licence. Skansen normally audit the waste carrier. Have EWC numbers. Skansen segregated the metal on site, as they get a better price for recycled metal if separated on site. The driver for recycling is the price they get for the material. They do not document this policy of segregating metals on site; it is just Skansen practice, because of the price of recycled metal. [Site Visit 22.06.2007] Credit not awarded at this stage as no proof of recycling.	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
M3	insulation	Y	See D17 on Pollution. They appear to be using mineral wool, which has an A rating in the GGS.	
M5	hard floor coverings	N	Site visit [22.06.2007]: slate floors in 5th floor by reception The specification "M40 STONE/CONCRETE/QUARRY/CERAMIC TILING/MOSAIC" states that the tiles are "black mountain slate", but does not give a manufacturer. The specification "M50 RUBBER/PLASTICS/CORK/LINO/CARPET TILING/ SHEETING" states that vinyl tiles will be put down in the tea point. The floor tiles are "AMTICO TECHNO " and the sheet is "POLYFLOR SD" and the anti-static tiles are "POLYFLOR SD". rating for vinyl in the GS is B. Credit not achieved.	The specification "M50 RUBBER/PLASTICS/CORK/LINO/CARPET TILING/ SHEETING" states that vinyl tiles will be put down in the tea point and vinyl sheet in the "general office room", and anti-static vinyl tiles in the IT comms room. For details see 5th floor
M6	soft floor covering - carpet	Y	a new carpet will be installed on 5th Floor [site visit 22.06.2007. this is detailed in the specification "M50 RUBBER/PLASTICS/CORK/LINO/CARPET TILING/ SHEETING". It is "INTERFACE EQUILIBRIUM EQUATION 304286". The manufacturers website [http://www.interfaceflor.eu/internet/productfiles.nsf/Lookup/3380200405_en/\$file/3380200405_en.pdf] states that this carpet is "Yarn: 100% Aquafil Alto Chroma Solution Dyed Nylon; and Backing: Graphlex" The interface website states that its carpet tiles have been tested by BRE and have achieved an A rating. Also, their website says that they run a "take back" scheme (at a cost) which will recycle or down cycle carpet tiles and divert from landfill.	Not applicable, as Skansen are only doing the CAT B fit out on this floor. The landlord has already fitted a carpet, which has been lifted and re-laid when the refurb is complete. [Site Visit 22.06.2007]

Measure ID	Good Practice Measure	Implemented?	5 th Floor assessment comment	6 th Floor assessment comment
M7	substructural floor systems - raised floor	Y	<p>The raised floors are being retained with 2 changes: The raised floor in the old comms room was higher than the rest of the floor. This is been taken out and lowered to same height as rest of floor. (about 10% of the floor area); By the lift lobby on the 5th floor, they want slate tiles.</p> <p>The raised floor system is very old and no longer produced. They have retained the floor but have had to remove floor tiles which have had grommets (holes) in them for cabling. They have had to acquire old stock or refurbished stock, as new tiles to match are no longer produced. These floor tiles are made of cement dust. [site visit 22.06.2007].</p> <p>The specification "K41 RAISED ACCESS FLOORS" states that the existing tiles have to be matched. It states that product reference is "Product reference: RMG600". The material is "STEEL ENCASED PARTICLE BOARD".</p> <p>award credit as most of floor is reused</p>	Not applicable, as Skansen are only doing the CAT B fit out on this floor. T
M8	glazed partitions	N	At the meeting it was indicated that there were glass partitions, but no specification has been provided for these. No credit awarded	As for 5th Floor
M9	paints	N	See Specification "M60 PAINTING/CLEAR FINISHING "Specifies Dulux paints for emulsion and oil based paint. Alternative supplier is JOHNSTONES.Finishes for the emulsions are Mist and Matt.Finishes for oil based paint are primer, undercoat, eggshell.Checked Dulux Website for paint specifications:[http://www.icipaints.co.uk/products/info/dulux_trade_eggshell.jsp]eggshell: VOC Content High 25% - 50%.matt: VOC Content Low 0.30% - 7.99%.Primer: VOC Content High 25% - 50%.Don't award credit as the dulux emulsion is just a standard paint; not extra low VOCs	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
M11	suspended ceiling systems	N	<p>see drawing 5-C-05 by Griffiths: There is a metal suspended ceiling in most places apart from over the reception area which is fixed plasterboard ceiling.</p> <p>The metal ceiling is Specification "K40 SUSPENDED CEILINGS": Type: FULLY ACCESSIBLE METAL SUSPENDED CEILING; Manufacturer and reference: SAS SYSTEM 130 and grid ALUGRID Q15/16 . The manufacturers specification state that this is mild Steel. GGS B rating, based on closest fit which is "concealed grid: steel tile.</p> <p>The plasterboard ceiling is Specification "K10 PLASTERBOARD DRY LININGS/PARTITIONS" states that there will be "SUSPENDED CEILING ON METAL FRAMING ". Manufacturer: "GYPROC CASOLINE MF". Structural soffit: CONCRETE. GYPROC PROFILEX ACCESS PANELS. From the manufacturers website [http://www.british-gypsum.bpb.com/products/arteco_ceiling_products/arteco_gyptone_tiles___planks/casoline_grid.aspx]. Casoline is actually the metal grid. So these look like concrete ceiling. Not rated in the GGS.</p>	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
M12	chipboard, hardwood, MDF, plywood, softwood	N	There is a specification for "Z10 PURPOSE MADE JOINERY". However it just gives requirements for handling the wood: it does not state where, if any, is purpose made joinery used. This goes with: Specification "P20 UNFRAMED ISOLATED TRIMS/SKIRTINGS/SUNDRY ITEMS": MEDIUM DENSITY FIBRE BOARD FOR SKIRTINGS	As for 5th Floor

Measure ID	Good Practice Measure	Implemented?	5 th Floor assessment comment	6 th Floor assessment comment
M16	doors	Y	<p>site visit [22.06.2007] - New doors: American dark walnut, solid core. Specification "L20 DOORS/SHUTTERS/HATCHES". Timber Flush Doors are "Core: SOLID CORE; Facings: AMERICAN BLACK WALNUT VENEER; ALUMINIUM DOOR FRAMES": no manufacturer specified. GGS A rating based on closest fit which is "plywood faced, softwood core" "SOLID SLIDING DOORS:TO CHAIR STORE": Materials: FULL HEIGHT 25mm LAMINATED MDF PANELS SUSPENDED FROM SAA TRACK. ABS EDGING TO DOORS TO MATCH LAMINATE: manufacturer: DR SERVICES TROJAN 120B SYSTEM . GSS A rating based on closest fit which is "MDF faced, softwood core. "FOLDING WALLS TO MEETING ROOMS": Manufacturer and reference: SILENTA TYPE 110. The manufacturers specification state that these are made of high density particle board with sound reduction insulation. GGS C rating based on closest fit which is "chipboard faced, chipboard core". NB there is no information about the insulation that is used. There are also glass doors: "FRAMELESS GLASS DOORS TO PARTITIONS" and "GLASS SLIDING DOORS:TO RECEPTION". GGS A rating based on closest fit which is "hardwood frame fully glazed with wired glass. Award Credit as all doors are A rated; the folding walls could be classified as walls rather than doors.</p>	As for 5th Floor
M17	kitchen cupboards & worktops	N	<p>From site visit [22.06.2007] there is one pantry and two tea points. The employers specification p 96 gives a vague description of kitchen but no details. We have not been supplied with the N10 specification "General Fixtures/furnishings/equipment</p>	As for 5th Floor
M19	partitions	N	<p>Specification "K10 PLASTERBOARD DRY LININGS/PARTITIONS" states that there will be "METAL STUD PARTITIONS TO GENERAL AREAS " manufacturer GYPROC GYPWALL. Also "PLYWOOD LINED METAL STUD PARTITIONS" which are the above with "SUBSTITUTE INTERNAL LAYER/S OF 12.5mm SOUNDBLOC WITH 12mm WBP PLYWOOD". No recycled content so credit not awarded</p>	As for 5th Floor
E5	lighting - controls	Y	<p>From the site visit [22.06.2007] "On PIR in banks. Also controlled by BMS system. Will switch off after 20-30 mins if bank not occupied. Meeting rooms have PIR and switches" These are on the ETL so the credit is achieved.</p>	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
E6	lighting - fittings	N	Credit not achieved because it is combined with E7	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
E7	lighting - lamps	N	<p>From site visit [22.06.2007]: main lamps are "Phillips PL-L 40W/840/4P". The ETL website combines fittings with Lamps: this product does not meet the requirements as it is a CFL but is not tri-phosphor. Credit not achieved.</p>	Not applicable, as Skansen are only doing the CAT B fit out on this floor.
E8	pipework insulation	N	At the site visit [22.06.2007] it was stated that there Lagging for M&E. No criteria for how thick the lagging should be has been give so this credit is not awarded	As for 5th Floor

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).

Complete "pool" of Good Practice Measures for office fit-out (061214)			
Credit ID	Issue (short)	Good practice measure	Type of Measure
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

Complete "pool" of Good Practice Measures for office fit-out (061214)			
Credit ID	Issue (short)	Good practice measure	Type of Measure
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

Complete "pool" of Good Practice Measures for office fit-out (061214)			
Credit ID	Issue (short)	Good practice measure	Type of Measure
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

Complete "pool" of Good Practice Measures for office fit-out (061214)			
Credit ID	Issue (short)	Good practice measure	Type of Measure
M2	Materials	bricks	Materials
M3	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

Complete "pool" of Good Practice Measures for office fit-out (061214)			
Credit ID	Issue (short)	Good practice measure	Type of Measure
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

Complete "pool" of Good Practice Measures for office fit-out (061214)			
Credit ID	Issue (short)	Good practice measure	Type of Measure
E18	Water	efficient taps - electromagnetically operated	Equipment
P1	Energy	Energy in use / CO2 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 3] offices fit-out – ‘Ska’ Rating & Benchmarking Pilot

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1	First Draft	10/08/07
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