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Good Practice Measures for Offices V1.2

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Acknowledgments

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SKA rating is committed to the continuous development and improvement of the SKA rating system and would like to hear further feedback on these measures at any stage. Please email any comments to support@skarating.org.

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Reduce lighting energy in use

Criteria

Annual lighting electricity use is less than or equal to:

	Naturally vented cellular office	Naturally vented open plan office	Air conditioned office	Air conditioned prestige office
kWh/m²/year	14	22	27	29

Scoping

This measure applies to occupancy stage assessments if any of the lighting energy measures (D01, D02 and E01–E04) were in scope at the handover stage assessment and regardless of whether submetering arrangements allow lighting energy use to be measured (see guidance).

Assessment

This measure can only be assessed after a minimum of one year's occupation as the electricity usage has to be measured over a full calendar year (365 days). This is to take account of seasonal variations, such as amount of daylight, and occupant behaviour, such as holidays.

At handover stage: record electricity meter readings for the lighting circuit(s).

At occupancy stage: take meter readings for the lighting circuit(s) and use the meter readings taken at the handover stage to calculate the annual lighting electricity consumption in kWh (the difference between the readings). Calculate the lighting electricity use based on the net floor area of the interior space (in m²).

The calculation is as follows:

$$\text{Lighting electricity use } (\text{kWh/m}^2) = \frac{\text{Annual electricity usage related to lighting (kWh)}}{\text{Floor area (m}^2\text{)}}$$

Rationale

The aim is to encourage the occupant to reduce energy consumption. The targets set here are based on good practice benchmarks. If the fit-out process has introduced energy efficiency measures, then the impact of these measures should be reflected in reduced annual energy consumption.

Fit-out benchmark & assessment tool

Energy and CO_2
Issue

P10
ID

1
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Reduce lighting energy in use (continued)

Guidance

Definitions for the different office types are:

Naturally vented cellular office

- A simple building, often (but not always) relatively small and sometimes in converted residential accommodation.
- Typical size ranges from 100m^2 to 3,000m^2.

The domestic approach, with individual windows, lower illuminance levels, local light switches and heating controls helps to match the operation with the needs of occupants and tends to reduce electricity consumption in particular. There also tend to be few common facilities. Catering often consists of the odd sink, refrigerator and kettle.

Naturally vented open plan office

- Largely open-plan but with some cellular offices and special areas.
- Typical size ranges from 500 m^2 to 4,000m^2.

This type is often purpose built, sometimes in converted industrial space. Illuminance levels, lighting power densities and hours of use are often higher than in cellular offices. There is more office equipment, are more vending machines, etc., and more routine use of this equipment. Lights and shared equipment tend to be switched in larger groups, and to stay on for longer because it is more difficult to match supply to demand.

Air-conditioned standard office

- Largely purpose-built and often speculatively developed.
- Typical size ranges from 2,000m^2 to 8,000m^2.

This type is similar in occupancy and planning to 'Naturally vented open plan', but usually has a deeper floor plan, and tinted or shaded windows that reduce daylight still further. These buildings are often more intensively used. The benchmarks are based on variable air volume (VAV) air-conditioning with air-cooled water chillers; other systems often have similar overall consumption but a different composition of end use.

Air-conditioned prestige office

- A national or regional head office, or technical or administrative centre.
- Typical size ranges from 4,000m^2 to 20,000m^2.

This type is purpose-built or refurbished to high standards. Plant running hours are often longer to suit the diverse occupancy. These buildings include catering kitchens (serving hot lunches for about half the staff); air-conditioned rooms for mainframe computers and communications equipment; and sometimes extensive storage, parking and leisure facilities.

Ideally the electricity consumption should be measured during the first year of occupation. However, the assessment period can start at any time within the first year of occupation (therefore finishing within the first two years of occupation).

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

P10

ID

1

Rank

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Reduce lighting energy in use (continued)

The measure remains in scope even if there are no lighting submeters to provide consumption figures. This is because the client has chosen to implement resource-saving measures but has no way to measure the benefit of them. As the assessment can be completed at any time during the first two years of occupation, the client has time to install the meters required.

It is not possible to use the energy performance certificates or display energy certificates to measure energy in use for this measure. This is because these certificates cover the performance of the whole building. The purpose of this measure is to assess only those elements that were changed because of the fit-out process, and to determine whether they have had an impact on the tenant's energy usage.

Benchmarks have been taken from the following documents:

- *Energy use in offices,* Energy consumption guide 19 (EGC 19), CIBSE, 2000.
- Energy Benchmarks, TM46, CIBSE, 2008.
- Energy efficiency in buildings, Guide F, CIBSE, 2012.

Fit-out benchmark & assessment tool

Energy and CO_2
Issue

P10
ID

1
Rank

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Reduce small power in use

Criteria

Annual small power energy use is less than or equal to the tailored benchmark for this office type.

Scoping

This measure applies to all occupancy stage assessments.

Assessment

This measure can only be assessed after a minimum of one year's occupation as the electricity usage has to be measured over a full calendar year (365 days). This is to take account of seasonal variations, such as amount of daylight, and occupant behaviour, such as holidays.

At handover stage: record electricity meter readings for small power.

At occupancy stage: take meter readings enabling the quantification of the energy use for small power and use the meter readings taken at the handover stage to calculate the annual lighting electricity consumption in kWh (the difference between the readings). Calculate the electricity use based on the net floor area of the interior space (in m^2).

$$\text{Small power electricity use } (kWh/m^2) = \frac{\text{Annual electricity usage related to small power (kWh)}}{\text{Floor area } (m^2)}$$

The tailored benchmark against which the annual consumption must be checked is calculated using the P11 calculator.

Rationale

The aim is to encourage the occupant to reduce energy consumption. The targets set here are based on good practice benchmarks. If the fit-out process has introduced energy efficiency measures, then the impact of these measures should be reflected in reduced annual energy consumption.

Guidance

Ideally the electricity consumption should be measured for the first year of occupation. However, the assessment period can start at any time within the first year of occupation (therefore finishing within the first two years of occupation).

Fit-out benchmark & assessment tool

Energy and CO_2
Issue

P11
ID

2
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Reduce small power in use (continued)

The measure remains in scope even if there are no electricity meters to provide consumption figures. This is because the client has chosen to implement resource-saving measures but has no way to measure the benefit of them. As the assessment can be completed at any time during the first two years of occupation, the client has time to install the meters required.

It is not possible to use the energy performance certificate or display energy certificate to measure energy in use for this measure. This is because these certificates cover the performance of the whole building. The purpose of this measure is to assess only those elements that were changed because of the fit-out process, and to determine whether they have had an impact on the tenant's energy usage.

Benchmarks have been taken from the following documents:

- BCO Guide to Specification, British Council for Offices, 2009.
- *Energy use in offices, Energy consumption guide 19* (EGC 19), CIBSE, 2000.
- Energy Benchmarks, TM46, CIBSE, 2008.
- Energy efficiency in buildings, Guide F, CIBSE, 2012.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

P11

ID

2

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Energy efficient lighting

Criteria

Installed lighting load in the general office area is less than 11W/m^2.

Scoping

This measure applies if a general office lighting system serving at least one area of more than 20m^2 is being installed or upgraded.

The criteria apply only to workspaces (either open plan or cellular offices) and meeting spaces. Other areas within the office environment, such as toilet blocks, lift lobbies, stairs, tea points and kitchen areas are excluded.

Assessment

At design stage: check specifications and drawings.

At handover stage: check as-built drawings, and/or carry out a site visit to check the fittings that have been installed and their locations.

At occupancy stage: if the general office lighting layout has been changed then carry out the handover stage assessment. If this measure was achieved at handover stage and the layout has not been changed or added to, this measure will be achieved by default.

Rationale

The aim is to encourage the design of energy efficient lighting installations.

If the lighting design provides suitable lux levels for the occupants then it is unlikely it will have changed at the occupancy stage assessment. If light fittings have been repositioned or replaced it is likely the design did not deliver the required lux levels: the new lighting design needs to be checked to ensure that the load still meets the criteria set by this good practice measure.

Guidance

BCO Guide to Specification, British Council for Offices, 2009.

Energy efficiency in buildings, Guide F, CIBSE, 2012.

Lighting Guide 7: Office Lighting, CIBSE, 2005.

Lighting: non-domestic, Good Building Guide 61, Part 3, BRE, 2004.

Lighting technology overview, CTV021, Carbon Trust, 2007.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

D01

ID

4

Rank

SKA Offices 1.2 2013

Version

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Lighting controllability

Criteria

- Lights are automatically controlled by occupancy and the presence of daylight where appropriate, with lighting control zones no larger than eight work stations, including cellular offices; and
- manual override of automatic controls is provided to allow occupant control.

Scoping

This measure applies if new lighting is being installed or existing controls are being replaced.

The criteria apply to lighting in office spaces, corridors, and nonoccupied spaces such as toilets and store rooms.

Assessment

At design stage: check specifications and drawings.

At handover stage: check as-built drawings, and/or carry out a site visit to check the controls that have been installed and their locations.

At occupancy stage: if the controls have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the controls have not been changed or added, this measure will be achieved by default.

Rationale

Good practice, as outlined in the CIBSE guidelines for office lighting, dictates that office lighting should be simply and easily controlled. When new lighting is being installed, the design should incorporate controls that minimise energy usage: lighting should switch off when daylight provides a sufficient level of illuminance and also when spaces are unoccupied.

Guidance

See E01 Lighting controls.

When installing controls consider the following:

- use of zoning – so that lights closest to windows have separate controls; and
- use of timing – so lights default to off during daylight hours andoutside of office hours.

Lighting Guide 7: Office Lighting, CIBSE, 2005.

Lighting technology overview, CTV021, Carbon Trust, 2007.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

D02

ID

5

Rank

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Version

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Lighting controls

Criteria

Lighting controls meet or exceed the Energy Technology List criteria (ETL criteria).

Scoping

This measure applies if new lighting controls are being installed.

Assessment

At design stage: check written specifications/contracts state this equipment must comply with the ETL criteria. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: obtain the name of the equipment manufacturer, the model number and the specifications; check the specifications match the ETL criteria.

At occupancy stage: if lighting controls have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and lighting controls have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to encourage the use of energy efficient lighting controls. Lights are often left on when not needed. Equally, people will often turn on all the lights in a room or building when they are only occupying a small section of it.

Good lighting control ensures that lights are only on when needed. It is easy to fit products to existing buildings or lighting systems, and they can help significantly reduce the amount of energy being used.

Guidance

Individual products and manufacturers of lighting controls are not listed on the ETL website. Individual products qualify for an Enhanced Capital Allowance (ECA) if they meet the criteria set out in the ETL. The criteria can be found by searching the ETL catalogue. It is recommended that this is checked and documented by the electrical design engineer or electrical contractor installing the fittings.

Lighting technology overview, CTV021, Carbon Trust, 2007.

Defra, Market Transformation Programme on energy efficient products.

NMO, The Energy Related Products Directive on labelling of energy efficient products.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

E01

ID

6

Rank

SKA Offices 1.2 2013

Version

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Energy efficient lamps

Criteria

All internal and external lamps meet or exceed the Energy Technology List (ETL) criteria.

Scoping

This measure applies if new internal or external lamps are being installed. This includes all signage lighting.

There may be occasional instances where existing light fittings cannot take energy efficient lamps. This measure remains in scope even though it cannot be achieved. This is because the aim of the assessment is to encourage more sustainable behaviour and in this instance the most sustainable behaviour would be to upgrade the light fittings.

Assessment

At design stage: check written specifications/contracts state this equipment must comply with the ETL criteria. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: obtain the name of the equipment manufacturer, the model number and the specifications; check the specifications match the ETL criteria.

At occupancy stage: if lamps have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and lamps have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to encourage the use of energy efficient lamps.

Guidance

Individual products and manufacturers of lamps are not listed on the ETL website, Individual products can qualify for an Enhanced Capital Allowance (ECA) if they meet the criteria set out in the ETL. The criteria can be found by searching the ETL catalogue.

The ETL combines lamps and light fittings into a single category. The Inland Revenue will only provide a tax allowance for the combined lamp and fitting. In a fit-out it is possible to replace lamps without replacing the entire fitting so there are two separate Ska measures for lamps and fittings.

To assess whether lamps meet the criteria download the criteria documents for 'high efficiency lighting unit' and 'white light emitting diode units'. The lamps being installed must meet the criteria relating to lamps within these two documents.

Fit-out benchmark & assessment tool

Energy and CO_2
Issue

E02
ID

10
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Energy efficient lamps (continued)

If both lamps and fittings are being installed then the lighting installer should be able to provide the documentation required by the Inland Revenue that confirms the products meet the ETL criteria. It is recommended that this is checked and documented by the electrical design engineer or electrical contractor installing the fittings.

Lighting technology overview, CTV021, Carbon Trust, 2007.

Defra, Market Transformation Programme on energy efficient products.

NMO, The Energy Related Products Directive on labelling of energy efficient products.

If you would like to comment on this measure please email **support@skarating.org**

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Energy efficient heat pumps

Criteria

Heat pumps are on the Energy Technology List (ETL), or meet/exceed the ETL criteria.

Scoping

This measure applies if new heat pumps are being installed.

Assessment

At design stage: check written specifications/contracts state this equipment must be sourced from the ETL. If the model and manufacturer have already been specified then carry out handover stage assessment.

At handover stage: obtain the name of the equipment manufacturer and the model number; check it is on the ETL.

At occupancy stage: if heat pumps have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the heat pumps have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to encourage the use of energy efficient heat pumps.

Guidance

The Inland Revenue maintains an Energy Technology List of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of energy efficient heat pumps. Heat pumps can include air-to-air, air-to-water, water-to-water, air-to-ground or waterto- ground systems.

Defra, Market Transformation Programme on energy efficient products.

NMO, The Energy Related Products Directive on labelling of energy efficient products.

Fit-out benchmark & assessment tool

Energy and CO_2
Issue

E05
ID

18
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Pipework insulation

Criteria

The insulation installation complies with BS 5422:2009.

Scoping

This measure applies if pipework or pipework insulation is being installed.

Assessment

At design stage: check written specifications state the pipework insulation is based on BS 5422:2009. The specification should show the thickness of insulation required for all pipe installations based on BS 5422:2009.

At handover stage: obtain written confirmation from the installer that the pipework insulation has been fitted in compliance with BS 5422:2009 and the insulation thicknesses match those in the design specification.

At occupancy stage: if pipework insulation has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and pipework insulation has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to decrease energy loss as a result of inadequate pipework insulation.

Guidance

The *Energy Technology List* (ETL) criteria for pipework insulation are based on compliance with BS 5422:2009 – *Method for specifying thermal insulating materials for pipes, tanks, vessels, ductwork and equipment operating within the temperature range* –40°C to +700°C, BSI, 2009.

Clients can include pipework insulation as an Enhanced Capital Allowance. The BS specifies the various thicknesses of insulation required for different circumstances so it is impossible to list individual products on the ETL. The enhanced capital allowance for pipework insulation can be claimed if the installer confirms that it has been fitted in compliance with BS 5422:2009.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

E07

ID

27

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Tenancy sub-metering

Criteria

- Automatic monitoring and targeting (AMT) equipment is installed. AMT equipment comprises meters, an automatic meter reading device and analytical software.
- The meter component is installed for each floor and each tenancy area within a floor for space heating and cooling, and domestic hot water.

Scoping

This measure applies if the heating/cooling supply system is being installed or modified or if meters are being connected to the existing system.

It applies only where heating and cooling, and domestic hot water is either:

- generated from a centralised system and supplied to each floor/tenancy area as heat (hot air or hot water); or
- generated directly for the floor from a non-electric source (for example, gas).

Assessment

At design stage: review mechanical and electrical specifications or electrical schematic to ensure that the appropriate metering and submetering is specified.

At handover stage: check meters have been installed and meet the specification by reviewing operation and maintenance manuals, asbuilt schematics or invoices, or by a site inspection. Ensure that the annual calibration of sub-meters by the manufacturer or supplier is covered within the maintenance schedule.

At occupancy stage: check the AMT system is operational by reviewing the output from the building management system or by a site inspection of the meters. If meters have been added during the first year of occupation, carry out the handover stage assessment. Ensure that the annual calibration of sub-meters by the manufacturer or supplier is being undertaken.

Rationale

Monitoring energy usage allows the tenant to identify areas of high consumption. This assists in the development of a carbon management strategy that could provide environmental and economic benefits.

Although this measure only covers the meters, the measure cannot be achieved unless a full AMT system is installed, as the benefits from metering are not achieved unless the data from them can be analysed.

Fit-out benchmark & assessment tool

Energy and CO_2
Issue

E08
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Rank

SKA Offices 1.2 2013
Version

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Tenancy sub-metering (continued)

Guidance

The above requirements exceed those set out in Part L2 of the Building Regulations.

Building Energy Metering, CIBSE TM39, 2009.

Energy efficiency in buildings, Guide F, CIBSE, 2004.

Better Metering Toolkit.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

E08

ID

28

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Energy efficient light fittings

Criteria

All internal and external light fittings (luminaires) meet or exceed the Energy Technology List (ETL) criteria.

Scoping

This measure applies if new internal or external light fittings are being installed. This includes all signage lighting.

Assessment

At design stage: check written specifications/contracts state this equipment must comply with the ETL criteria. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: obtain the name of the equipment manufacturer, the model number and the specifications; check the specifications match the ETL criteria.

At occupancy stage: if light fittings have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the fittings have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to encourage the use of energy efficient light fittings.

Guidance

Individual products and manufacturers of light fittings are not listed on the ETL website. Individual products qualify for an Enhanced Capital Allowance (ECA) if they meet the criteria set out in the ETL. The criteria can be found by searching the ETL catalogue.

The ETL combines lamps and light fittings into a single category. The Inland Revenue will only provide a tax allowance for the combined lamp and fitting. In a fit-out it is possible to replace lamps without replacing the entire fitting so there are two separate Ska measures for lamps and fittings.

To assess whether fittings meet the criteria, download the criteria documents for 'high efficiency lighting unit' and 'white light-emitting diode units'. The fittings being installed must meet the criteria relating to fittings within these two documents.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

E04

ID

29

Rank

SKA Offices 1.2 2013

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Energy efficient light fittings (continued)

If both lamps and fittings are being installed then the lighting installer should be able to provide the documentation required by the Inland Revenue that confirms the products meet the ETL criteria.

Lighting technology overview, CTV021, Carbon Trust, 2007.

Defra, Market Transformation Programme on energy efficient products.

NMO, The Energy Related Products Directive on labelling of energy efficient products.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

E04

ID

29

Rank

SKA Offices 1.2 2013

Version

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HVAC zone controls

Criteria

Heating, ventilation and air conditioning (HVAC) zone controls are on the Energy Technology List (ETL) or meet/exceed the ETL criteria.

Scoping

This measure applies if these systems are being upgraded or replaced.

Assessment

At design stage: check written specifications/contracts state this equipment must be sourced from the ETL or demonstrably meet the ETL criteria in full. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: obtain the name of the equipment manufacturer and the model number; check it is on the ETL or that it meets the ETL criteria in full.

At occupancy stage: if HVAC zone controls have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the controls have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to encourage the use of energy efficient HVAC zone controls.

Guidance

The Inland Revenue maintains an *Energy Technology List* of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of energy efficient HVAC zone controls. It is recommended the mechanical design engineer or mechanical contractor undertakes the review of the systems to document how they comply with the ETL criteria.

Heating, ventilation and air conditioning (HVAC) technology overview, CTV003, Carbon Trust, 2006.

Defra, Market Transformation Programme on energy efficient products.

NMO, The Energy Related Products Directive on labelling of energy efficient products.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

E06

ID

30

Rank

SKA Offices 1.2 2013

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End-use sub-metering

Criteria

Automatic monitoring and targeting (AMT) equipment is installed. AMT equipment comprises meters, an automatic meter reading device and analytical software. The meter component is installed for each electricity energy use. This requires separate meters for all the following items:

- lighting – a minimum of one sub-meter per floor and per tenancy area within a floor;
- small power – a minimum of one sub-meter per floor and per tenancy area within a floor;
- humidification;
- major fans with air handling units with greater than 10kW input power;
- lifts;
- escalators;
- cooling systems with greater than 20kW input power;
- space heating (including combined heating and cooling systems such as variable refrigerant flow (VRF) systems with greater than 50kW input power);
- domestic hot water (if they are powered by electricity) – a minimum of one sub-meter per floor and per tenancy area within a floor;
- any other major energy consuming items.

AMT equipment complies with all the qualifying standards within the Energy Technology List (ETL) criteria.

Scoping

This measure applies if the electrical supply system is being installed or modified or if meters are being connected to the existing system.

Assessment

At design stage: review mechanical and electrical specifications or electrical schematic to ensure that the appropriate metering and submetering is specified.

At handover stage: check meters have been installed and meet the specification by reviewing operation and maintenance manuals, as-built schematics or invoices, or by a site inspection.

At occupancy stage: check the AMT system is operational by reviewing the output from the building management system or by a site inspection of the meters. If meters have been added during the first year of occupation, carry out the handover stage assessment.

Fit-out benchmark & assessment tool

Energy and CO_2
Issue

E09
ID

41
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

End-use sub-metering (continued)

Rationale

Monitoring energy usage allows the tenant to identify areas of high consumption. This assists in the development of a carbon management strategy that could provide environmental and economic benefits.

Although this measure only covers the meters, the measure cannot be achieved unless a full AMT system is installed, as the benefits from metering are not achieved unless the data from them can be analysed.

Guidance

An example of another major energy consuming item is a heat pump, including heat pumps and condensers forming part of a VRF or split unit heating and cooling system.

Building Energy Metering, CIBSE TM39, 2009.

The Carbon Reduction Commitment – a guide for landlords and tenants, British Council for Offices, 2009.

Better Metering Toolkit.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

E09

ID

41

Rank

SKA Offices 1.2 2013

Version

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IT and comms room energy consumption

Criteria

Dedicated IT and communication rooms have a calculated DCIE (data centre infrastructure efficiency) of 70% or greater.

Scoping

This measure applies if IT and comms rooms and their support services are being installed, altered or upgraded.

Assessment

At design stage: check written specifications/contracts meet the criteria.

At handover stage: check calculations of the DCIE are based on the installed equipment.

At occupancy stage: carry out the handover stage assessment.

Rationale

The aim is to reduce energy use from IT and comms rooms' IT framework solutions and associated cooling requirements. The DCIE is an efficiency benchmark comparing data centre infrastructure to existing IT load.

The initial benchmarking of DCIE yields an efficiency score and sets a testing framework for the facility to repeat.

Guidance

The DCIE is the reciprocal of the PUE (power usage effectiveness) and is expressed as a percentage; the higher the percentage, the higher the efficiency.

$$\text{DCIE} = \frac{1}{\text{PUE}} \times 100\% = \frac{\text{IT Equipment Power}}{\text{Total Facility Power}} \times 100\%$$

$$\text{PUE} = \frac{\text{Total Facility Power}}{\text{IT Equipment Power}}$$

IT Equipment Power includes the equipment that is used to manage, process, store, or route data within the data centre, such as computer, storage, and network equipment, along with supplemental equipment such as KVM switches, monitors, and workstations/ laptops used to monitor or otherwise control the data centre.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

E22

ID

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SKA Offices 1.2 2013

Version

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IT and comms room energy consumption (continued)

Total facility power includes everything that supports the IT equipment load, such as:

- power delivery components such as UPS, switch gear, generators, PDUs, batteries, and distribution losses external to the IT equipment;
- cooling system components such as chillers, computer room air conditioning units (CRACs), direct expansion air handler (DX) units, pumps, and cooling towers;
- computer, network, and storage nodes; and
- other miscellaneous component loads such as data centre lighting.

Use of these metrics has become typical practice for new data centres built in the US and the UK, and increasingly elsewhere in Europe.

For more information and a free PUE estimator tool, visit The Green Grid.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

E22

ID

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Rank

SKA Offices 1.2 2013

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Energy efficient HVAC

Criteria

Heating, ventilation and air conditioning (HVAC) system components listed below are on the Energy Technology List (ETL) or meet the ETL criteria for the relevant equipment:

- boiler equipment;
- heat pumps;
- HVAC zone controls;
- motors and drives;
- refrigeration equipment; and
- air-to-air heat exchangers.

Note: The criteria apply only to those components that are in scope.

Scoping

This measure applies if any one of the components listed above is being installed, upgraded or replaced.

Note: Heat pumps, HVAC zone controls and boilers are good practice measures in their own right. For this measure it is necessary for all the listed components of the HVAC system that are being upgraded to meet the ETL criteria.

Assessment

At design stage: check written specifications/contracts state the equipment must be sourced from the ETL. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: obtain the name of the equipment manufacturer and the model number; check it is on the ETL**.**

At occupancy stage: if the equipment has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the equipment has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to encourage the installation of energy efficient HVAC systems.

Fit-out benchmark & assessment tool

Energy and CO_2
Issue

D03
ID

48
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SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Energy efficient HVAC (continued)

Guidance

See **E05 Energy efficient heat pumps, E06 HVAC zone controls, E11 Efficient boilers.**

The Inland Revenue maintains an Energy Technology List (ETL) of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of energy efficient HVAC systems. The following components are not on the ETL and therefore do not fall within the scope of this measure: fan coil units, VAV boxes, and air-handling units. Visit www.eca.gov.uk/etl for more information.

Including air-to-air heat exchangers on the list covers the process of recovering energy from air expelled into the atmosphere, and using it as supply air. This means not as much energy is needed to heat the supply air, so less is used and emissions are reduced. Various devices can be used, including plate heat exchangers, thermal wheels, runaround coils, heat-pipe generators and regenerators.

Heating, ventilation and air conditioning (HVAC) technology overview, CTV003, Carbon Trust, 2006.

Defra, Market Transformation Programme on energy efficient products.

NMO, The Energy Related Products Directive on labelling of energy efficient products.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

D03

ID

48

Rank

SKA Offices 1.2 2013

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Energy modelling

Criteria

Energy modelling is undertaken for the fit-out using energy modelling software selected and applied in accordance with CIBSE AM11 Building Energy and Environmental Modelling. A full dynamic thermal analysis must be undertaken at the detailed design stage. A report must be produced, based on the findings of the modelling exercise, which highlights the most appropriate passive design measure(s) for the fit-out: this report must show that the proposed measures save energy and meet thermal comfort requirements. At least one of the recommended measures must be implemented.

Scoping

This measure is only in scope if the client decides to undertake energy modelling.

Assessment

At design stage: review the energy modelling report to ensure that it meets the criteria. Review drawings and specifications provided to confirm that at least one of the passive design measures recommended within the report is included within the design.

At handover stage: ensure that at least one of the passive design measures recommended within the report is installed by reviewing the O&Ms, as-built schematics or invoices, or by a site inspection.

At occupancy stage: if this measure was achieved at handover stage, this measure will be achieved by default at this stage.

Rationale

The use of energy modelling during the design stage is encouraged to identify the most appropriate passive design measures for the fit-out, helping to reduce the energy demand of the space. Examples of passive measures are insulation and window films.

Guidance

The modelling must cover whole space being fitted-out.

Thermal comfort levels are defined in CIBSE Guide *A Environmental Design*.

This measure is not in scope if the design team installs passive energy measures but does not carry out energy modelling. This is because retail units can suffer from overheating, so the addition of insulation could increase energy use (through increased cooling demand) rather than reducing energy use.

CIBSE AM11: *Building energy and environmental modelling*, CIBSE, 1998.

CIBSE Guide *A Environmental Design,* 7th edition, Issue 2, CIBSE, 2007.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

D66

ID

49

Rank

SKA Offices 1.2 2013

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Electrical management

Criteria

An electrical management survey/review is undertaken by a suitably qualified electrical engineer in accordance with the recommended survey techniques in the Carbon Trust's *Voltage Management – An introduction to technology and techniques* publication. A report must be produced by the electrical engineer providing results from the survey and calculations, also in accordance with the Carbon Trust's publication, to illustrate the potential for energy savings through the implementation of electrical management measures. The report must recommend appropriate electrical management measures where there is potential for energy savings. All recommendations made within the report must be installed as part of the fit-out.

Scoping

This measure will only be in scope where the client decides to review the electrical management.

Assessment

At design stage: review the electrical management report to ensure that it meets the criteria. Review drawings and specifications provided to confirm that all recommendations within the report are included within the design.

At handover stage: ensure that all electrical management measures recommended within the report have been installed by reviewing the O&Ms, as-built schematics or invoices, or by a site inspection.

At occupancy stage: review records to ensure that all electrical management measures have been maintained to manufacturers requirements.

Rationale

Undertaking an electrical management survey allows the tenant to identify areas where the use of electrical management measures can be implemented to achieve energy savings. The aim of this measure is to encourage tenants to carry out an appropriate survey to determine the extent of potential energy savings for a fit-out. Where there is potential to save energy, this measure encourages the implementation of electrical management measures to achieve these savings.

Fit-out benchmark & assessment tool

Energy and CO_2
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Electrical management (continued)

Guidance

There are a number of electrical management techniques including voltage optimisation, voltage stabilisation, voltage regulation, voltage power optimisation, voltage reduction and current optimisation. The scope of the Carbon Trust's publication on voltage management does not cover current optimisation, however, where the suitably qualified electrical engineer undertaking the electrical management survey deems this as an appropriate measure that has the potential to produce energy savings within the fit-out, it should be covered by the electrical management report.

Voltage Management – an introduction to technology and techniques (CTG045). Carbon Trust. 2011.

Fit-out benchmark & assessment tool

Energy and CO_2
Issue

D53
ID

59
Rank

SKA Offices 1.2 2013
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If you would like to comment on this measure please email **support@skarating.org**

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Energy efficient boilers

Criteria

Boilers are on the Energy Technology List (ETL) or meet/exceed the ETL criteria.

Scoping

This measure applies if new boilers are installed.

Assessment

At design stage: check written specifications/contracts state this equipment must be sourced from the ETL. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: obtain the name of the equipment manufacturer and the model number; check it is on the ETL.

At occupancy stage: if the boilers have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the boilers have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to provide an energy efficient boiler.

Guidance

The Inland Revenue maintains an *Energy Technology List* of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of energy efficient boilers.

Defra, Market Transformation Programme on energy efficient products.

NMO, The Energy Related Products Directive on labelling of energy efficient products.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

E11

ID

68

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Daylighting

Criteria

Average daylight factor is 2% or greater.

Scoping

This measure applies if alterations are made to the building façade, with the opportunity to redesign glazing.

The criteria apply only to occupied floor spaces such as office/ workshop spaces. The criteria do not apply to circulation spaces or non-occupied spaces such as toilets and store rooms.

Assessment

At design stage: obtain calculations demonstrating the daylight factor achieved, supported by elevations and floor plans.

At handover stage: review the as-built drawings to ensure that the designs have been implemented. If the as-built drawings are not the same as the design, then the contractor may need to provide updated calculations to demonstrate that the installed glazing still meets the criteria.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

Effective use of available daylight reduces the need for artificial lighting and provides a more natural environment for building occupants. Although there is no maximum daylight factor it should be recognised that 'flooding' natural light into a workspace is not good practice.

Guidance

Lighting for buildings. Code of practice for daylighting, BS 8206- 2:2008, BSI, 2008.

Lighting Guide 10: Daylighting and Window Design, CIBSE, 1999.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

D04

ID

69

Rank

SKA Offices 1.2 2013

Version

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Energy efficient hand-dryers

Criteria

All electrically-operated hand-dryers meet at least one of the following criteria:

- meet all the following criteria:
  - have a nominal power output of 1600 W or less;
  - have a drying time of 15 seconds or less;
  - have an equipment motor speed of 20,000 rpm or more; and
  - are sensor activated;
- have been awarded a carbon reduction label by The Carbon Trust; or
- are on the Energy Technology List for 'High Speed Hand Air Dryers'.

Scoping

This measure applies if electrical hand-dryers are being installed or replaced.

Assessment

At design stage: check written specifications/contracts state this equipment must comply with the criteria. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: check the installed equipment meets the criteria.

At occupancy stage: if hand-dryers have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the hand-dryers have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to encourage the use of high speed air hand dryer products which have the greatest energy efficiency.

Guidance

The Inland Revenue maintains an Energy Technology List of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of 'High Speed Hand Air Dryers'.

Carbon Reduction Label.

The latest research paper from Massachusetts Institute of Technology (MIT) concludes that high speed hand air dryers have a lower life cycle impact than paper towels and warm air hand dryers.

Fit-out benchmark & assessment tool

Energy and CO_2
Issue

E24
ID

70
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

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Energy efficient DHW

Criteria

Gas-fuelled domestic hot water (DHW) systems are on the Energy Technology List (ETL) or meet the ETL criteria.

Electricity-fuelled domestic hot water (DHW) systems have a standing heat loss better than that specified in table 5 of BS EN 15450:2007 as reproduced below:

Nominal volume l	Max. heat loss kWh/24h	Nominal volume l	Max. heat loss kWh/24h
30	0.75	600	3.8
50	0.90	700	4.1
80	1.1	800	4.3
100	1.3	900	4.5
120	1.4	1000	4.7
150	1.6	1100	4.8
200	2.1	1200	4.9
300	2.6	1300	5.0
400	3.1	1500	5.1
500	3.5	2000	5.2

Scoping

This measure applies if DHW systems are being upgraded or replaced.

Note: This measure only includes dedicated DHW heaters. If DHW is supplied from the system that provides space heating, then it will be covered by the selection of space heating equipment (see E11 Efficient boilers). This measure excludes electric heaters that have a storage capacity of less than 30 litres.

Assessment

At design stage: check written specifications/contracts state that gas-fuelled equipment must be sourced from the ETL or that electricity-fuelled equipment must have a standing heat loss better than that specified in the table above. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: obtain the name of the manufacturer of the equipment

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Energy efficient DHW (continued)

and the model number. Check that gas-fuelled equipment is on the ETL or that electricity-fuelled equipment has a standing heat loss better than that specified in the table above.

At occupancy stage: if the DHW system has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the DHW system has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to encourage the use of energy efficient DHW systems.

Guidance

The Inland Revenue maintains an Energy Technology List of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of energy efficient DHW systems. DHW systems can be found under the category 'boiler equipment' or 'solar thermal systems'.
Visit www.eca.gov.uk/etl for more information.

Heating systems in buildings. Design of heat pump heating systems, BS EN 15450:2007, BSI, 2007.

Defra, Market Transformation Programme on energy efficient products.

NMO, The Energy Related Products Directive on labelling of energy efficient products.

Fit-out benchmark & assessment tool

Energy and CO_2
Issue

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SKA Offices 1.2 2013
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Reduce fit-out energy use

Criteria

All energy use on site is metered, records are kept and the site manager regularly reviews consumption figures. Meter readings are taken at a frequency appropriate to the project programme with at least five measurements taken. Energy consumption minimisation is considered within the project or construction phase plan.

Scoping

This measure applies to all fit-outs.

The criteria apply to electricity and other fuels used on site, such as diesel for a generator.

Assessment

At design stage: obtain commitment from the design team that the fit-out contractor will meter and keep records of energy use.

At handover stage: review the records of energy usage.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to encourage the monitoring of energy consumption during the construction process, so that construction staff are aware of energy usage and are encouraged to make reductions.

Collection of this data will enable benchmarking and provide targets for energy reduction in future fit-out projects.

Guidance

For a general overview of why energy management on site is required, refer to the document *Achieving sustainability on construction procurement*.

The construction industry key performance indicators are published each year by Constructing Excellence using performance data collected from across the UK construction sector by the Department for Business Innovation & Skills (BIS, formerly DTI/BERR). These include benchmarks for energy use.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

P01

ID

86

Rank

SKA Offices 1.2 2013

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Display energy certificates (DECs)

Criteria

A DEC is issued for the portion of the space that was fitted out and an advisory report provided. The certificate is issued by an energy assessor who is accredited to produce DECs for office or retail buildings.

Scoping

This measure applies to all occupancy assessments.

Assessment

This measure can only be assessed after a minimum of one year's occupation.

At occupancy stage: check the DEC has been carried out.

Rationale

The aim is to encourage the occupant to reduce energy consumption. The DEC measures the energy performance of a building (or part of a building) based on actual energy consumption as recorded annually by meters. It provides an Operational Rating (OR): a numerical indicator of the actual annual carbon dioxide emissions from the building and rates this on a scale of A to G with A being the best performing building.

At present a DEC is only legally required for public buildings with a floor area greater than 1,000m2. DECs remain voluntary for all other buildings and therefore this is a valid good practice measure under the Ska Rating principles. The target set for this measure is based on the 2009 analysis of DECs produced for government buildings.

An advisory report provides recommendations as to how the energy performance can be improved. A DEC is valid for one year and an advisory report is valid for seven years.

Guidance

Improving the energy efficiency of our buildings: A guide to display energy certificates and advisory reports for public buildings, Department for Communities and Local Government, December 2012.

DEC data – Centre for Sustainable Energy.

PlanLoCal – Planning for Low Carbon living.

Les-En – a map of DECs on buildings.

Fit-out benchmark & assessment tool

Energy and CO_2

Issue

P09

ID

105

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Hardwoods

Criteria

100% of hardwood meets at least one of the following criteria:

- is reclaimed;
- where new hardwood is used, is supplied with a Chain of Custody (CoC) from one of the following forest certification schemes only:
  - Forest Stewardship Council (FSC);
  - Programme for the Endorsement of Forest Certification (PEFC);
  - Sustainable Forestry Initiative (SFI); or
  - Canadian Standards Association (CSA); or
- Project FSC certification is accredited to the project through the contractor to include the supply of all timber on the project.

Scoping

This measure applies if hardwood is specified or installed.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria.

At handover stage: check invoices for all timber and timber products. All invoices for new timber and timber products must detail the quantity and type of product purchased and state the CoC number for the final handler of the product prior to it being installed on site.

Where a CoC number is missing for the final step in the timber handling chain, comprehensive Category B evidence will be acceptable to claim 'sustainable timber' is used on the project but not to publicly claim that a certified product has been purchased. Note that if it is intended for the project to be certified independently by FSC, Category B evidence will not be accepted.

At occupancy stage: if hardwood has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and hardwood has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the use of unmanaged hardwoods in construction/ fit-outs, and consequently to reduce the environmental impact of forestry by ensuring timber originates from sustainable sources.

Ideally timber and timber products should be sourced from the nearest forest, as this reduces the CO2 emissions associated with transport. For UK-sourced timber it can either be certified by one of the above schemes or by the UK Woodland Assurance Standard (UKWAS). This is the UK certification scheme that is recognised by both FSC and PEFC.

Fit-out benchmark & assessment tool

Materials
Issue

M05
ID

11
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Hardwoods (continued)

Guidance

The extent of Category B evidence required to demonstrate sustainable timber use throughout the fit-out will need to be determined on a case by case basis. The maximum evidence required will consist of three completed checklists:

1. Supply chain information
2. Forest source information of legality
3. Forest source information on sustainability

Note that only checklist 1 needs to be completed if Chain of Custody certification is available at any given stage of the supply chain. The supply chain information needs to be completed from the point at which Chain of Custody certification is no longer available.

The checklists and additional advice and free training are available through the Central Point of Expertise on Timber (CPET).

CPET offer free advice and one-day training workshops to assist in the understanding of sustainable timber requirements. The CPET helpline can be accessed by phoning 01865 243 766 or by emailing cpet@proforest.net

Mixed source labels

In instances where a material or product is labelled with a certification scheme that states it derives from mixed sources, it is still compliant as all the sources are still certified under the accreditation scheme.

EU timber regulations

The EU now prohibits the entry of illegal timber into the market. This includes all timber used in any by-product, furniture or other timber product. All timber and its uses in projects are still required to produce a full CoC of the approved schemes to demonstrate standards are based on current understanding of best practices for sustainable forest management.

Project CoC FSF Certification falls within the criteria and is recognised.

Forest Stewardship Council (FSC)

Programme for the Endorsement of Forest Certification (PEFC)

Sustainable Forestry Initiative (SFI)

Canadian Standards Association (CSA)

UK Woodland Assurance Standard (UKWAS)

Fit-out benchmark & assessment tool

Materials

Issue

M05

ID

11

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Timber

Criteria

100% of timber used is from at least one of the following sources:

- is reclaimed;
- is recycled; or
- where new timber is used, is supplied with a Chain of Custody (CoC) from one of the following forest certification schemes only:
  - Forest Stewardship Council (FSC);
  - Programme for the Endorsement of Forest Certification (PEFC);
  - Sustainable Forestry Initiative (SFI);
  - Canadian Standards Association (CSA).

Or FSC Project Certification is accredited to the contractor and includes the supply of all timber on the project.

Scoping

This measure applies if timber is specified or installed. This includes hardwoods, softwoods, joinery, timber panel products (e.g. MDF, plywood), composite timber, wood veneers in permanent installations and temporary site timber.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria.

At handover stage: check invoices for all timber and timber products. All invoices for new timber and timber products must detail the quantity and type of product purchased and state the CoC number for the final handler of the product prior to it being installed on site.

Where a CoC number is missing for the final step in the timber handling chain, comprehensive Category B evidence will be acceptable to claim 'sustainable timber' is used on the project but not to publicly claim that a certified product has been purchased. Note that if it is intended for the project to be certified independently by FSC, Category B evidence will not be accepted.

At occupancy stage: if timber has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and timber has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the use of unmanaged timber in construction/fitouts, and consequently to reduce the environmental impact of forestry by ensuring timber originates from sustainable sources. Sourcing reclaimed timber is the most sustainable option.

Ideally timber and timber products should be sourced from the nearest forest, as this reduces the CO2 emissions associated with transport. For UK-sourced

Fit-out benchmark & assessment tool

Materials
Issue

D20
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21
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If you would like to comment on this measure please email **support@skarating.org**

Timber (continued)

timber it can either be certified by one of the above schemes or by the UK Woodland Assurance Standard (UKWAS). This is the UK certification scheme that is recognised by both FSC and PEFC.

The primary uses of timber in a fit-out are likely to be: wall panelling, flooring, partitions/screens, furniture, and concealed timber framing/structure.

Guidance

The extent of Category B evidence required to demonstrate sustainable timber use throughout the fit-out will need to be determined on a case by case basis. The maximum evidence required will consist of three completed checklists:

1. Supply chain information
2. Forest source information of legality
3. Forest source information on sustainability

Note that only checklist 1 needs to be completed if CoC certification is available at any given stage of the supply chain. The supply chain information needs to be completed from the point at which CoC certification is no longer available.

The checklists and additional advice and free training are available through the Central Point of Expertise on Timber (CPET).

In instances where material or a product are labelled with a certification scheme that states it derives from mixed sources, it is still compliant as all the sources are still certified under the accreditation scheme.

The EU now prohibits the entry of illegal timber into the market. This includes all timber used in any by-product, furniture or other timber product. All new timber still requires a full CoC from the approved schemes to demonstrate that standards are based on the current understanding of best practices for sustainable forest management.

CPET offer free advice and one-day training workshops to assist in the understanding of sustainable timber requirements. The CPET helpline can be accessed by phoning 01865 243 766 or by emailing cpet@proforest.net

Forest Stewardship Council (FSC) (FSC Project Certification falls within the criteria and is recognised)

Programme for the Endorsement of Forest Certification (PEFC)

Sustainable Forestry Initiative (SFI)

Canadian Standards Association (CSA)

UK Woodland Assurance Standard (UKWAS)

Fit-out benchmark & assessment tool

Materials

Issue

D20

ID

21

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Raised flooring systems

Criteria

All raised flooring systems meet at least one of the following criteria:

- are reused;
- if new, are manufactured with 100% recycled and recyclable content, designed for deconstruction with components that can be recycled; or
- are supplied with an environmental product declaration written in accordance with ISO 14025 standards.

Recycled content claims must comply with ISO 14021:1999 Type II Self-declared Environmental Claims and state knowledge of IAQ emissions.

Scoping

This measure applies if raised flooring is specified or installed.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria.

At handover stage: check materials used based on delivery notes and/or records of materials found during site visits.

At occupancy stage: if raised flooring has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and raised flooring has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Guidance

Some manufacturers produce raised flooring systems made from recycled nylon or timber.

The Green Guide to Specification: An Environmental Profiling System for Building Materials and Components (4th edition), Anderson, Shiers and Steele, Blackwell Science, 2009.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

ISO 14025: 2006

ISO 14021

Fit-out benchmark & assessment tool

Materials

Issue

M07

ID

35

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Blockwork

Criteria

All blocks used meet at least one of the following criteria:

- are reclaimed;
- if new, are manufactured with a recycled content based on the targets shown in the table below and are 100% recyclable;
- are unfired clay blocks;
- if new, are sourced from a certified manufacturer with a BES 6001 'Very Good' performance rating for the product and the corresponding quarry ; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

Minimum recycled content for new blocks:

Block type	%
Dense block	93%
Lightweight block	93%
Aerated block	65%
Foamed glass block	65%

Any recycled and recyclable content claims must comply with ISO 14021:1999 Type II Self-declared Environmental Claims and state knowledge of IAQ emissions.

Note: If the blocks are sourced from outside the UK then regardless of whether or not they meet the above criteria they may not be considered as meeting the requirements of this measure. This is because the impact of transport needs to be considered; for example, importing reclaimed blockwork from China is not considered sustainable. The assessor has to use their judgment in applying this rule.

Scoping

This measure applies if blockwork is specified or installed.

Assessment

At design stage: check specifications explicitly reference the criteria or specify a product that meets the criteria. For BES 6001, collate the certification documentation.

At handover stage: collate manufacturers' data for installed products responding to the criteria or provide a statement of retention/reuse of existing blockwork.

Fit-out benchmark & assessment tool

Materials

Issue

M01

ID

45

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

Blockwork (continued)

At occupancy stage: if blockwork has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and blockwork has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Guidance

The targets for the recycled content of new blockwork are based on the targets set by WRAP. See *Choosing construction products: Guide to the recycled content of mainstream construction products*, Reference guide, GB Version 4.1, WRAP, June 2008.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

GreenSpec – a directory of sustainable construction products in the UK.

ISO 14025:2006

ISO 14021:1999

BES 6001 *Responsible Sourcing of Construction Products*.

With the Government's increasing focus on sustainable development, many construction companies are recognising the need to prove that their buildings are constructed with sustainability in mind. One element of this is the responsible sourcing of products used in their construction and the onus of proof that is increasingly being passed on to the manufacturers of those construction products.

The BRE standard BES 6001 has been published to enableconstruction product manufacturers to ensure and then prove thattheir products have been made with constituent materials that havebeen responsibly sourced. The standard describes a framework foraddressing the organisational governance, supply chain managementand environmental and social aspects in ensuring the responsiblesourcing of construction products.

Independent, third party assessment and certification against therequirements of BES 6001 then gives the organisation the ability toprove that an effective system for ensuring responsible sourcingexists and adds credibility to any claims made.

Morton, T., *Feat of clay*, article in *Materials World*, January 2006 – the article discusses the use of unfired clay blocks for sustainableconstruction.

Fit-out benchmark & assessment tool

Materials

Issue

M01

ID

45

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Suspended ceilings

Criteria

All suspended ceiling systems, including tiles meet at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 90% recycled content (measured by mass) and 100% recyclable content (designed for deconstruction with components that can be recycled);
- if new, have a Cradle to Cradle^{CM} Silver – Platinum certificate; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards;

And:

- if containing timber components, the timber meets the criteria of good practice measure **D20 Timber**.

Recycled content claims must comply with ISO 14021:1999 Type II Self-declared Environmental Claims and state knowledge of IAQ emissions.

Scoping

This measure applies if suspended ceilings are specified, replaced, refurbished or installed.

Assessment

At design stage: check specifications explicitly reference the criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or obtain a statement of retention/reuse of existing suspended ceilings.

At occupancy stage: if suspended ceilings have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and suspended ceilings have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Fit-out benchmark & assessment tool

Materials
Issue

M10
ID

46
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Suspended ceilings (continued)

Guidance

The target for the recycled content of suspended ceilings is based on WRAP's stated good practice for mineral ceiling tiles. This measure has been designed to encourage the selection of products that are capable of having a high recycled content. See *Choosing construction products: Guide to the recycled content of mainstream construction products*, Reference guide, GB Version 4.1, WRAP, June 2008.

It is recognised that the grid and tiles are specified and warranted as a system. However, the grid component of the system has been excluded from the assessment as the vast majority of grids in suspended ceiling systems are made from steel or aluminium and these already contain a relatively high proportion of recycled content.

There is insufficient evidence to favour one over the other as both metals hold their value and there is a good market for scrap: neither needs to be sent to landfill. Therefore suspended ceiling systems are differentiated by the tile rather than the grid.

The term 'recycled content' includes both post-consumer waste and secondary materials (defined as a waste by-product from a different industry). Processing waste recycled in-house should not be included in the recycled content calculations for the product.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

ISO 14025:2006

ISO 14021:1999

The Cradle to Cradle^{CM} program lists all the products that have been certified.

Fit-out benchmark & assessment tool

Materials

Issue

M10

ID

46

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Re-locatable partitions

Criteria

All partitions meet at least one of the following criteria:

- are reused;
- are re-locatable (see guidance for definition) and are manufactured in a factory that has achieved and maintains an environmental management system in accordance with BS EN ISO 14001;
- if new, are manufactured with at least 90% recycled content (measured by mass) and 100% recyclable content (designed for deconstruction with components that can be recycled); or
- are supplied with an environmental product declaration (other than that written for the Green Book Live), written in accordance with ISO 14025 standards;

And:

- if timber or containing timber elements, the timber meets the criteria of good practice measure D20 Timber.

Recycled content claims must comply with ISO 14021:1999 Type II Self-declared Environmental Claims and state knowledge of IAQ emissions.

Scoping

This measure applies if re-locatable partitions are specified or installed.

Assessment

At design stage: check specifications explicitly reference the criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or provide a statement of retention/reuse of existing partitions.

At occupancy stage: if re-locatable partitions have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and partitions have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Fit-out benchmark & assessment tool

Materials

Issue

M08

ID

47

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

Re-locatable partitions (continued)

This GPM replaces **M08 Partitions**. Demountable partitions are generally manufactured using plasterboard and steel, which already meet high recycled content targets and have recycling streams readily available. By replacing **M08 Partitions** with **M08 Re-locatable** partitions demountable partitions will no longer be in scope.

The aim is to encourage the use of re-locatable rather than demountable partitions where appropriate i.e. where rooms and office space are likely to be moved over the lifetime of the fit out. A re-locatable partition will allow spaces to be reconfigured, eliminating the need to dispose of materials and order new ones, and as such will meet the first principle in the waste hierarchy.

Guidance

Example of how to assess a partition containing a timber as well as other materials:

If a partition is 10% timber and 90% plasterboard, then all of the timber must be sourced from one of the four schemes FSC/PEFC/SFI/CSA or be reclaimed timber – as defined in good practice measure **D20 Timber**. The remaining 90% of the product, in this case plasterboard, will need to meet one of the criteria listed above.

The target for the recycled content of partitions is based on the target set for chipboard partitions by WRAP. See *Choosing construction products: Guide to the recycled content of mainstream construction products*, Reference guide, GB Version 4.1, WRAP, June 2008.

A re-locatable or reusable modular partition system can be removed and relocated without substantial repair (using a minimum of 80% of the original components); it should be capable of reinstallation within a tolerance of ± 10mm of the original installed height.

Note: demountable partitions cannot be taken down without damaging or destroying some or all of the components and therefore would not meet this Ska measure.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

ISO 14025:2006

ISO 14021:1999

Fit-out benchmark & assessment tool

Materials

Issue

M08

ID

47

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Soft flooring

Criteria

All soft floor coverings, including underlay where applicable, meet at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 50% recycled content (measured by mass) and 100% recyclable content (designed for deconstruction with components that can be recycled);
- have an A or A+ rating in BRE's *The Green Guide to Specification* for the retail scheme;
- have an A or A+ rating in BRE's *Green Book Live* database for the retail scheme;
- are manufactured from 50% renewable and natural products, e.g. wool, natural rubber, hessian;
- if new, have a Cradle to Cradle^{CM} Silver or higher certificate; or
- are supplied with an environmental product declaration (other than that written for the *Green Book Live*), written in accordance with ISO 14025 standards.

Recycled content claims must comply with ISO 14021:1999 Type II Self-declared Environmental Claims and state knowledge of IAQ emissions.

Scoping

This measure applies if soft floor coverings (carpet, vinyl, linoleum, rubber, synthetic thermoplastic) are specified or installed.

Assessment

At design stage: check specifications explicitly reference the criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or obtain a statement of retention/reuse of existing soft flooring.

At occupancy stage: if soft floor coverings have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and soft floor coverings have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials which can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Fit-out benchmark & assessment tool

Materials
Issue

M12
ID

51
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Soft flooring (continued)

Guidance

The reuse of existing soft floor coverings, either from the stripping out of existing floors on site or from the purchase of second hand floor coverings, is the most sustainable method.

The target for the recycled content of soft flooring is based on the target set for generic carpet tiles by WRAP. See *Choosing construction products: Guide to the recycled content of mainstream construction products,* Reference guide, GB Version 4.1, WRAP, June 2008.

The term 'recycled content' includes both post-consumer waste and secondary materials (defined as a waste by-product from a different industry). Processing waste recycled in-house should not be included in the recycled content calculations for the product.

BRE's *The Green Guide to Specification* provides a set of generic make-ups for this product. Find the makeup of the product and see if it matches any of the generic make-ups. If it does it gets a rating based on this generic make-up. If it does not match a generic makeup then check with the manufacturer to see if they have paid to have their product assessed by the BRE under this scheme. If so you can find their product listed in BRE's *Green Book Live* database.

On the *Green Book Live* website, select 'environmental profiles'.Select by section, e.g. partitions are classified as 'internal walls', or select by manufacturer. If you select 'internal walls' it will bring up a list of products. Against each product select the 'more...' text and this will bring up a screen showing the rating that the product has received from the BRE.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

GreenSpec – a directory of sustainable construction products in the UK.

ISO 14025:2006

ISO 14021:1999

The Cradle to Cradle^{CM} program lists all the products that have been certified.

Construction Products Association – *Guide to understanding the embodied impacts of construction products.*

Fit-out benchmark & assessment tool

Materials

Issue

M12

ID

51

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Glazed partitions

Criteria

All glazed partitions meet at least one of the following criteria:

- are reused;
- are re-locatable (see guidance for definition), and are manufactured in a factory that has achieved and maintains an environmental management system in accordance with BS EN ISO 14001; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

Scoping

This measure applies if glazed partitions are specified or installed.

Assessment

At design stage: check specifications explicitly reference the criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or obtain a statement of retention/reuse of existing glazed partitions.

At occupancy stage: if additional glazed partitions have been installed during the first year of occupation carry out the same check as for the handover stage. If this measure was achieved at handover stage and partitions have not been installed in that time, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials which can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Guidance

A re-locatable or reusable modular partition system can be removed and relocated without substantial repair (using a minimum of 80% of the original components); it should be capable of reinstallation within a tolerance of ± 10mm of the original installed height.

Note: demountable partitions cannot be taken down without damaging or destroying some or all of the components and therefore would not meet this Ska measure.

ISO 14025:2006

Fit-out benchmark & assessment tool

Materials

Issue

M09

ID

55

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Paints

Criteria

All paints meet at least one of the following criteria:

- have been awarded the EU Ecolabel;
- are manufactured with at least 90% recycled content; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

Recycled content claims must comply with ISO 14021:1999 Type II Selfdeclared Environmental Claims and state knowledge of IAQ emissions.

Scoping

This measure applies if paint is specified or used.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria.

At occupancy stage: if paint has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and paint has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Guidance

The EU Ecolabel scheme.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

EU legislation 2004/42/CE.

ISO 14021:1999

Guide to understanding the embodied impacts of construction products, Construction Products Association.

Fit-out benchmark & assessment tool

Materials

Issue

M14

ID

56

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Hard flooring

Criteria

All hard floor coverings meet at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 25% recycled content (measured by mass) and 100% recyclable content (designed for deconstruction with components that can be recycled);
- have been awarded the EU Ecolabel;
- have an A or A+ rating in BRE's *The Green Guide to Specification* for the retail scheme;
- have an A or A+ rating in BRE's *Green Book Live* database for the retail scheme;
- if new, have a Cradle to Cradle^{CM} Silver or higher certificate; or
- are supplied with an environmental product declaration (other than that written for the *Green Book Live*), written in accordance with ISO 14025 standards.

And:

- if timber, meet the criteria of good practice measure **D20 Timber**.

Recycled content claims must comply with ISO 14021:1999 Type II *Self-declared Environmental Claims* and state knowledge of IAQ emissions.

Scoping

This measure applies if hard flooring is specified or installed.

Assessment

At design stage: check specifications explicitly reference the criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or provide a statement of retention/reuse of existing hard flooring.

At occupancy stage: if hard flooring has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and hard flooring has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Fit-out benchmark & assessment tool

Materials
Issue

M11
ID

61
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Hard flooring (continued)

Guidance

The elimination of hard floor coverings by simply sealing concrete floors is the most sustainable option. If, however, floor coverings are required for aesthetic, comfort or acoustic reasons then reuse of existing hard floor coverings, either from the stripping out of existing floors on site or the purchase of second-hand floor coverings, is the preferred option.

The target for the recycled content of hard flooring is based on the targets set for hard flooring by WRAP and can be met by selecting an increased recycled content version of a range of flooring products including tiles, linoleum, rubber and resin bonded tiles. See *Choosing construction products: Guide to the recycled content of mainstream construction products*, Reference guide, GB Version 4.1, WRAP, June 2008.

The term 'recycled content' includes both post-consumer waste and secondary materials (defined as a waste by-product from a different industry). Processing waste recycled in-house should not be included in the recycled content calculations for the product.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

The Green Guide to Specification, BRE.

GreenSpec – a directory of sustainable construction products in the UK.

ISO 14025:2006

ISO 14021:1999

The Cradle to Cradle^{CM} program lists all the products that have been certified.

Guide to understanding the embodied impacts of construction products, Construction Products Association.

The EU Ecolabel scheme.

Fit-out benchmark & assessment tool

Materials

Issue

M11

ID

61

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Joinery

Criteria

100% of materials used in the joinery for the fit-out:

- is reclaimed; or
- it is new timber and meets the criteria of good practice measure D20 Timber.

And:

Where joinery items are completed off site, paint finishes should meet the criteria of M14 Paints and polishes & varnishes should meet the criteria of M15 Polishes and varnishes.

And:

All adhesives used in the assembly of each joinery item must have been tested to EN 13999 or ISO16000 standards and show that carcinogenic and volatile organic compounds are absent; or the adhesive is to have been awarded one of the following labels:

- Eurofins Indoor Air Comfort Gold standard
- Blue Angel RAL-UZ 113
- M1 Emissions Classification for construction products

All materials other than those stated above, such as glass or composite panel products, must contain a minimum of 10% recycled and 100% recyclable content. Recycled content claims must comply with ISO 14021:1999 Type II Self-declared Environmental Claims and state knowledge of IAQ emissions.

All assemblies must be designed for deconstruction with components that can be recycled.

Scoping

This measure applies if joinery is specified or installed.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria.

At handover stage: check invoices for all products. All invoices for new timber and timber products must detail the quantity and type of product purchased and state the CoC number for the final handler of the product prior to it being installed on site.

Where a CoC number is missing for the final step in the timber handling chain, comprehensive Category B evidence will be acceptable to claim 'sustainable timber' is used on the project but not to publicly claim that a certified product has been purchased. Note that if it is intended for the project to be certified independently by the Forest Stewardship Council (FSC), Category B evidence will not be accepted.

Fit-out benchmark & assessment tool

Materials

Issue

M06

ID

62

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

Joinery (continued)

All adhesives, paints, varnishes and polish products used as a part of each finished joinery item must be supplied with evidence that they meet the relevant criteria.

At occupancy stage: if joinery has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and joinery has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the use of unmanaged joinery in construction/fitouts, and consequently to reduce the environmental impact of forestry by ensuring timber originates from sustainable sources.

Ideally timber and timber products should be sourced from the nearest forest, as this reduces the CO2 emissions associated with transport. For UK-sourced timber it can either be certified by one of the schemes detailed in D20 Timber or by the UK Woodland Assurance Standard (UKWAS). This is the UK certification scheme that is recognised by both the FSC and the Programme for the Endorsement of Forest Certification (PEFC).

Guidance

The extent of Category B evidence required to demonstrate sustainable timber use throughout the fit-out will need to be determined on a case by case basis. The maximum evidence required will consist of three completed checklists:

1. Supply chain information
2. Forest source information of legality
3. Forest source information on sustainability

Note that only checklist 1 needs to be completed if Chain of Custody certification is available at any given stage of the supply chain. The supply chain information needs to be completed from the point at which Chain of Custody certification is no longer available.

The checklists and additional advice and free training are available through the Central Point of Expertise on Timber (CPET).

CPET offer free advice and one-day training workshops to assist in the understanding of sustainable timber requirements. The CPET helpline can be accessed by phoning 01865 243 766 or by emailing cpet@proforest.net

Fit-out benchmark & assessment tool

Materials
Issue

M06
ID

62
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Joinery (continued)

Adhesives

A number of European countries have introduced labelling schemes to show the VOC emissions of various products used within the indoor environment:

- Blue Angel is a German voluntary environmental product label, whose category RAL-UZ 113 covers adhesives.
- M1 is a Finnish classification for low emissions.
- Eurofins is a label operated by Eurofins, a testing company. The 'gold' standard demonstrates compliance with all European VOC labels.

The UK has a set of standards for testing various construction products. One of the test requirements for these products is to test the formaldehyde emission levels. The standards for testing VOCs in adhesives (EN 13999-1:2007, and BS 3046:1981) also cover other VOCs.

Cranfield Institute of Environment and Health

Indoor Air Quality UK

ISO 14021:1999

Forest Stewardship Council (FSC)

Programme for the Endorsement of Forest Certification (PEFC)

Sustainable Forestry Initiative (SFI)

Canadian Standards Association (CSA)

UK Woodland Assurance Standard (UKWAS)

Fit-out benchmark & assessment tool

Materials

Issue

M06

ID

62

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Insulation

Criteria

All insulation materials (thermal and acoustic) meet at least one of the following criteria:

- if new, are manufactured with at least 50% recycled (measured by mass) and 100% recyclable content that is designed for deconstruction with recyclable components;
- are manufactured from at least 50% renewable material, e.g. hemp, flax, newspaper, wool;
- if new, are manufactured with a combination of at least 50% recycled content or 50% renewable material, e.g. hemp, flax, newspaper, wool;
- 80% of the insulation has an A or A+ rating in BRE's *The Green Guide to Specification*;
- 80% of the insulation has an A or A+ rating in BRE's *Green Book Live database*; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

Any recycled and recyclable content claims must comply with ISO 14021:1999 Type II Self-declared Environmental Claims and state knowledge of IAQ emissions.

Scoping

This measure applies if insulation (thermal or acoustic) is specified or installed.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria.

At handover stage: check insulation materials used based on delivery notes and/or records of materials found during site visits.

At occupancy stage: if insulation has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and insulation has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

There is a separate good practice measure addressing the global warming potentials relating to insulation materials (see **D22 Low- GWP insulation**).

Fit-out benchmark & assessment tool

Materials
Issue

M04
ID

73
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Insulation (continued)

Guidance

The target for the recycled content is based on the target set for mineral (rock) wool by WRAP. WRAP indicates that some insulants, such as EPS, will not be able to meet this target. This measure has been designed to encourage the selection of products that are a capable of having a high recycled content. See *Choosing construction products: Guide to the recycled content of mainstream construction products*, Reference guide, GB Version 4.1, WRAP, June 2008.

Note: it has been suggested that basalt (the material used to make mineral wool) could be considered a renewable material as the rock source is replenished by volcanic activity, and is a very common material. However, at this stage Ska does not deem this acceptable as a definition of a "renewable" material. This is because the rock is not replenished at the site from which it is extracted.

BRE's *The Green Guide to Specification* provides a set of generic make-ups for this product. Find the makeup of the product and see if it matches any of the generic make-ups: if it does it gets a rating based on this generic make-up. If it does not match a generic makeup then check with the manufacturer to see if they have paid to have their product assessed by the BRE under this scheme. If so you can find their product listed in BRE's *Green Book Live* database.

On the *Green Book Live* website, select 'environmental profiles'. Select by section, e.g. partitions are classified as 'internal walls', or select by manufacturer. If you select 'internal walls' it will bring up a list of products. Against each product select the 'more...' text and this will bring up a screen showing the rating that the product has received from the BRE.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

GreenSpec – a directory of sustainable construction products in the UK.

ISO 14025:2006

ISO 14021:1999

Fit-out benchmark & assessment tool

Materials

Issue

M04

ID

73

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Kitchen fittings

Criteria

Non-timber material in all kitchen fittings for tea points, including cupboards, worktops, shelves and carcass (framework) meet at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 80% recycled content (measured by mass) and 100% recyclable content (designed for deconstruction with components that can be recycled);
- if new, are manufactured with 80% renewable content (straw or hemp) sourced from a UK manufacturing base, or;
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

Note: if the only non-timber material is the laminate finish then this is currently excluded from the assessment.

And:

Non-timber material in all kitchen fittings for commercial kitchens, including cupboards, worktops, workbenches, canopies and shelving, meet at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 60% recycled content; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

And:

- if containing timber components, the timber meets the criteria of good practice measure **D20 Timber**.

Recycled content claims must comply with ISO 14021:1999 Type II *Self-declared Environmental Claims* and state knowledge of IAQ emissions.

Scoping

This measure applies if kitchen fittings are installed in tea points and/or commercial kitchens.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or obtain a statement of retention/reuse of existing kitchen fittings.

At occupancy stage: if kitchen fittings have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and kitchen fittings have not been changed or added, this measure will be achieved by default.

Fit-out benchmark & assessment tool

Materials
Issue

M18
ID

75
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Kitchen fittings (continued)

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Guidance

A “commercial kitchen” is any space used for food preparation by professional caterers, including staff canteens etc.

A “tea point” is a food preparation space provided for staff to prepare drinks and food for themselves. Any equipment installed in it will be of “domestic” scale.

The term ‘recycled content’ includes both post-consumer waste and secondary materials (defined as a waste by-product from a different industry). Processing waste recycled in-house should not be included in the recycled content calculations for the product.

Example of how to assess a kitchen fitting containing a timber as well as other materials:

If a kitchen fitting is 60% timber and 40% steel, then all of the timber must be sourced from one of the four schemes (FSC/PEFC/SFI/CSA) or be reclaimed timber – as defined in good practice measure **D20 Timber**. The remaining 10% of the product, in this case steel, will need to meet one of the other criteria listed above. In this example the manufacturer could demonstrate that the steel used in the kitchen fitting contains 80% recycled steel.

Choosing construction products: Guide to the recycled content of mainstream construction products, Reference guide, GB Version 4.1, WRAP, June 2008.

International Stainless Steel Forum. Dated 2006.

Calculating and declaring recycled content in construction products, ‘Rules of Thumb’ guide, WRAP.

ISO 14025:2006

ISO 14021:1999

Fit-out benchmark & assessment tool

Materials

Issue

M18

ID

75

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Workstations and tables

Criteria

All workstations and tables meet at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 80% recycled content (measured by mass) and 100% recyclable content (designed for deconstruction with components that can be recycled);
- if new, have a Cradle to Cradle^{CM} Silver or higher certificate;
- if new, the company manufacturing the products is certified under the Furniture Industry Sustainability Programme (FISP) scheme;
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards; or
- have been awarded a Business and Institutional Furniture Manufacturers Association (BIFMA) 'level' certification.

And:

- if containing timber components, the timber meets the criteria of good practice measure **D20 Timber**.

Recycled content claims must comply with ISO 14021:1999 Type II *Self-declared Environmental Claims* and state knowledge of IAQ emissions.

Scoping

This measure applies if workstations or tables are specified or installed.

It applies for both procurement routes: ordered and supplied through the main contractor or a subcontractor of the fit-out; or supplied by the occupant/tenant.

Assessment

At design stage: check specifications explicitly reference at least one of the above the criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or obtain a statement of retention/reuse of existing workstations and tables.

At occupancy stage: if workstations or tables have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and workstations or tables have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Fit-out benchmark & assessment tool

Materials
Issue

M19
ID

76
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Workstations and tables (continued)

Guidance

Example of how to assess a workstation or table containing timber as well as other materials:

If a desk is 60% timber and 40% steel, then all of the timber must be sourced from one of the four schemes (FSC/PEFC/SFI/CSA) or be reclaimed timber – as defined in good practice measure **D20 Timber**. The remaining 40% of the product, in this case steel, will need to meet one of the criteria listed above. In this example the manufacturer could demonstrate that the steel used in the desk contains 80% recycled steel.

Many suppliers may claim their products contain recyclable components and materials. However, components may be bonded in such a manner to prevent separation and recycling into individual waste streams or local recycling facilities may simply not exist for any given material. Unless a recycling facility can be explicitly identified that is able to reprocess the components and materials at a high level in the value chain, e.g. plastic elements are reprocessed into new furniture and not simply down-cycled into plastic bags or other lower value products, it is not acceptable to claim that a product is recyclable. Some suppliers overcome this issue by offering in house take-back and recycling schemes – although not an essential requirement to achieve this measure, the commitment of a supplier to take back and recycle their products is an excellent source of evidence to support the claim that a product is recyclable.

Where recyclable content is identified a confirmed route for recycling into new products of a similar quality must be identified. The furniture manufacturer must clearly demonstrate and state that the 'recyclable' material does not degrade in quality after recycling and can be reused for a similar application. The aim is to promote a closed loop cycle of material use with minimal material waste.

Zero emissions from office, contract and kitchen furniture, BFM report funded by the TSB and concluded in 2008, including detailed impacts from a redesign of a tub chair example.

BFM (2002) Implications of sustainable development for UK reproduction furniture manufacturers. BFM Ltd, London.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

GreenSpec – a directory of sustainable construction products in the UK.

ISO 14025:2006

ISO 14021:1999

The Cradle to Cradle^{CM} program lists all the products that have been certified.

BFM Environment Projects (British Furniture Manufacturers).

FISP – Furniture Industry Sustainability Programme.

BIFMA Level – furniture environmental certification scheme.

EU Green Public Procurement – Furniture Product Sheet.

UK Defra – Goverment Buying Standards – Furniture Standards.

Construction Products Association – *Guide to understanding the embodied impacts of construction products*.

Fit-out benchmark & assessment tool

Materials

Issue

M19

ID

76

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Other loose ancillary furniture items

Criteria

All other furniture meets at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 40% recycled content (measured by mass) and 90% recyclable content (measured by mass and designed for deconstruction with components that can be recycled);
- if new, have a Cradle to Cradle^{CM} Silver or higher certificate;
- if new, the company manufacturing the products is certified under the Furniture Industry Sustainability Programme (FISP) scheme;
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards; or
- have been awarded a Business and Institutional Furniture Manufacturers Association (BIFMA) 'level' certification.

And:

- if containing timber components, the timber meets the criteria of good practice measure **D20 Timber**.

Recycled content claims must comply with ISO 14021:1999 Type II *Self-declared Environmental Claims* and state knowledge of IAQ emissions.

Scoping

This measure applies if furniture not covered by good practice measures M19, M20 and M21 is specified, retained, modified, replaced or installed.

It applies for both procurement routes: ordered and supplied through the main contractor or a subcontractor of the fit-out; or supplied by the occupant/tenant.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or obtain a statement of retention/reuse of existing furniture.

At occupancy stage: if furniture has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and furniture has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Fit-out benchmark & assessment tool

Materials
Issue

M22
ID

79
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Other loose ancillary furniture items (continued)

Guidance

Example of how to assess a storage unit containing timber as well as other materials:

If a storage unit is 60% timber and 40% steel, then all of the timber must be sourced from one of the four schemes (FSC/PEFC/SFI/CSA) or be reclaimed timber – as defined in good practice measure **D20 Timber**. The remaining 40% of the product, in this case steel, will need to meet one of the criteria listed above. In this example the manufacturer could demonstrate that the steel used in the storage unit contains 80% recycled steel.

Many suppliers may claim their products contain recyclable components and materials. However, components may be bonded in such a manner to prevent separation and recycling into individual waste streams or local recycling facilities may simply not exist for any given material. Unless a recycling facility can be explicitly identified that is able to reprocess the components and materials at a high level in the value chain, e.g. plastic elements are reprocessed into new furniture and not simply down-cycled into plastic bags or other lower value products, it is not acceptable to claim that a product is recyclable. Some suppliers overcome this issue by offering in house take-back and recycling schemes – although not an essential requirement to achieve this measure, the commitment of a supplier to take-back and recycle their products is an excellent source of evidence to support the claim that a product is recyclable.

Where recyclable content is identified a confirmed route for recycling into new products of a similar quality must be identified. The furniture manufacturer must clearly demonstrate and state that the 'recyclable' material does not degrade in quality after recycling and can be reused for a similar application. The aim is to promote a closed loop cycle of material use with minimal material waste.

Zero emissions from office, contract and kitchen furniture, BFM report funded by the TSB and concluded in 2008, including detailed impacts from a redesign of a tub chair example.

BFM (2002) Implications of sustainable development for UK reproduction furniture manufacturers. BFM Ltd, London.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

GreenSpec – a directory of sustainable construction products in the UK.

ISO 14025:2006

ISO 14021:1999

The Cradle to Cradle^{CM} program lists all the products that have been certified.

BFM Environment Projects (British Furniture Manufacturers).

FISP – Furniture Industry Sustainability Programme.

BIFMA Level – furniture environmental certification scheme.

EU Green Public Procurement – Furniture Product Sheet.

UK Defra – Goverment Buying Standards – Furniture Standards.

Fit-out benchmark & assessment tool

Materials

Issue

M22

ID

79

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Doors

Criteria

All doors, including frames, meet at least one of the following criteria:

- are re-used;
- if new, are manufactured in a factory that has achieved and maintains an Environmental Management System in accordance with BS EN ISO 14001 with either (or a combination of both):
  - composite materials that have at least 80% recycled content;
    or
  - metal components that follow WRAP's *Choosing construction products guide* (see guidance) and contain an average of:
    - steel section 15%
    - stainless steel 75%
    - copper sheet 60%
    - aluminium extrusion 44%
    - aluminium sheet 73%; or
    - are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

And:

- if containing timber components, the timber meets the criteria of good practice measure **D20 Timber**.

Recycled content claims must comply with ISO 14021:1999 Type II *Self-declared Environmental Claims* and state knowledge of IAQ emissions.

Scoping

This measure applies if doors are specified or installed.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or obtain a statement of retention/reuse of existing doors.

At occupancy stage: if doors have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and doors have not been changed or added, this measure will be achieved by default.

Fit-out benchmark & assessment tool

Materials
Issue

M17
ID

80
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Doors (continued)

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport, and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Guidance

The term 'recycled content' includes both post-consumer waste and secondary materials (defined as a waste by-product from a different industry). Processing waste recycled in-house should not be included in the recycled content calculations for the product.

Example of how to assess a door containing timber as well as other materials:

If a door is 90% timber and 10% steel, then all of the timber must be sourced from one of the four schemes (FSC/PEFC/SFI/CSA) or be reclaimed timber – as defined in good practice measure D20 Timber.

The remaining 10% of the product, in this case steel, will need to meet one of the other criteria listed above.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

Choosing construction products: Guide to the recycled content of mainstream construction products, Reference guide, GB Version 4.1, WRAP, June 2008.

This provides further details and types of metals and their recycled content.

ISO 14025:2006

ISO 14021:1999

Fit-out benchmark & assessment tool

Materials

Issue

M17

ID

80

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Chairs

Criteria

All task and visitor chairs meet at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 40% recycled content (measured by mass) and 90% recyclable content (measured by mass and designed for deconstruction with components that can be recycled);
- if new, have a Cradle to CradleCM Silver or higher certificate;
- if new, the company manufacturing the products is certified under the Furniture Industry Sustainability Programme (FISP) scheme;
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards; or
- have been awarded a Business and Institutional Furniture Manufacturers Association (BIFMA) 'level' certification.

And:

- if containing timber components, the timber meets the criteria of good practice measure D20 Timber.

Recycled content claims must comply with ISO 14021:1999 Type II Self-declared Environmental Claims and state knowledge of IAQ emissions.

Scoping

This measure applies if task or visitor chairs are specified or installed.

It applies for both procurement routes: ordered and supplied through the main contractor or a subcontractor of the fit-out; or supplied by the occupant/tenant.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or obtain a statement of retention/reuse of existing kitchen fittings.

At occupancy stage: if chairs have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and chairs have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Fit-out benchmark & assessment tool

Materials
Issue

M20
ID

81
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Chairs (continued)

Guidance

Example of how to assess a chair containing timber as well as other materials:

If a chair is 80% timber and 20% fabric, then all of the timber must be sourced from one of the four schemes (FSC/PEFC/SFI/CSA) or be reclaimed timber – as defined in good practice measure **D20 Timber**. The remaining 20% of the product, in this case fabric, will need to meet one of the criteria listed above.

Many suppliers may claim their products contain recyclable components and materials. However, components may be bonded in such a manner to prevent separation and recycling into individual waste streams or local recycling facilities may simply not exist for any given material. Unless a recycling facility can be explicitly identified that is able to reprocess the components and materials at a high level in the value chain, e.g. plastic elements are reprocessed into new furniture and not simply down-cycled into plastic bags or other lower value products, it is not acceptable to claim that a product is recyclable. Some suppliers overcome this issue by offering in house take-back and recycling schemes – although not an essential requirement to achieve this measure, the commitment of a supplier to take-back and recycle their products is an excellent source of evidence to support the claim that a product is recyclable.

Where recyclable content is identified a confirmed route for recycling into new products of a similar quality must be identified. The furniture manufacturer must clearly demonstrate and state that the 'recyclable' material does not degrade in quality after recycling and can be reused for a similar application. The aim is to promote a closed loop cycle of material use with minimal material waste.

Zero emissions from office, contract and kitchen furniture, BFM report funded by the TSB and concluded in 2008, including detailed impacts from a redesign of a tub chair example.

BFM (2002) Implications of sustainable development for UK reproduction furniture manufacturers. BFM Ltd, London.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

GreenSpec – a directory of sustainable construction products in the UK.

ISO 14025:2006

ISO 14021:1999

The Cradle to Cradle^{CM} program lists all the products that have been certified.

BFM Environment Projects (British Furniture Manufacturers).

FISP – Furniture Industry Sustainability Programme.

BIFMA Level – furniture environmental certification scheme.

EU Green Public Procurement – Furniture Product Sheet.

UK Defra – Goverment Buying Standards – Furniture Standards.

Fit-out benchmark & assessment tool

Materials
Issue

M20
ID

81
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

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WC Cubicles

Criteria

All WC cubicles must meet at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 70% recycled content (measured by mass) and 100% recyclable content (designed for deconstruction with components that can be recycled);
- if new, are manufactured with 70% renewable content (straw or hemp) sourced from a UK manufacturing base; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

And:

- if timber or containing timber components, the timber meets the criteria of good practice measure **D20 Timber**.

Recycled content claims must comply with ISO 14021:1999 Type II *Self-declared Environmental Claims* and state knowledge of IAQ emissions.

Scoping

This measure applies if WC cubicles are specified, upgraded (including repair) or installed. It applies to both procurement routes: ordered and supplied through the main contractor or a subcontractor of the fit-out; or supplied by the occupant/tenant.

Note: integrated panel systems for concealed cisterns and urinals are covered by this good practice measure. The materials used for vanity units, except for counter tops, are covered by this measure.

In retail schemes, counter tops are covered by measure M27.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products in response to the criteria, or obtain a statement of retention/reuse of existing equipment.

At occupancy stage: if the WC cubicles have been changed or added then repeat the handover stage assessment. If this measure was achieved at handover stage and the equipment has not been changed or added, this measure will be achieved by default.

Fit-out benchmark & assessment tool

Materials
Issue

M28
ID

82
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

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WC Cubicles (continued)

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Guidance

Example of how to assess a cubicle containing timber as well as other materials:

If a cubicle is 60% timber and 40% steel, then all of the timber must be sourced from one of the four schemes (FSC/PEFC/SFI/CSA) or be reclaimed timber – as defined in good practice measure **D20 Timber**. The remaining 40% of the product, in this case steel, will need to meet one of the criteria listed above. In this example the manufacturer could demonstrate that the steel used in the cubicle contains 80% recycled steel.

Note: this measure is in scope if existing cubicles are repaired rather than replaced with a new cubicle. It is considered more sustainable to repair a cubicle than replace it with a new one. The measure is automatically met because repairs to existing cubicles are classified under “reuse”.

Fit-out benchmark & assessment tool

Materials

Issue

M28

ID

82

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Bricks

Criteria

All bricks used meet at least one of the following criteria:

- are reclaimed;
- if new, are manufactured with at least 30% recycled content and 100% recyclable content;
- are unfired clay blocks;
- if new, are sourced from a certified manufacturer with a BES 6001 'Very Good' performance rating for the product and the corresponding quarry; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

Any recycled and recyclable content claims must comply with ISO 14021: 1999 Type II Self-declared Environmental Claims and state knowledge of IAQ emissions.

Note: If the blocks are sourced from outside the UK then regardless of whether or not they meet the above criteria they may not be considered as meeting the requirements of this measure. This is because the impact of transport needs to be considered; for example, importing reclaimed bricks from China is not considered sustainable. The assessor has to use their judgment in applying this rule.

Scoping

This measure applies if bricks are specified or installed.

Assessment

At design stage: check specifications explicitly reference the criteria or specify a product that meets the criteria. For BES 6001:2008 collate the certification documentation.

At handover stage: collate manufacturers' data for installed products responding to the criteria or provide a statement of retention/reuse of existing blockwork.

At occupancy stage: if bricks have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and bricks have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials. An environmental product declaration is a measurement of the lifetime environmental impact of a product. However, at this point in time there are very few products that have one of these labels.

Fit-out benchmark & assessment tool

Materials
Issue

M02
ID

83
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Bricks (continued)

Reclaimed and unfired bricks use much less energy in manufacture than other types of bricks. However, the distance over which bricks are transported needs to be taken into account due to their weight.

Guidance

The targets for the recycled content of new blockwork are based on the targets set by WRAP. See *Choosing construction products: Guide to the recycled content of mainstream construction products*, Reference guide, GB Version 4.1, WRAP, June 2008.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

GreenSpec – a directory of sustainable construction products in the UK.

ISO 14025:2006

ISO 14021:1999

BES 6001 *Responsible Sourcing of Construction Products*.

With the Government's increasing focus on sustainable development, many construction companies are recognising the need to prove that their buildings are constructed with sustainability in mind. One element of this is the responsible sourcing of products used in their construction and the onus of proof that is increasingly being passed on to the manufacturers of those construction products.

The BRE standard BES 6001 has been published to enableconstruction product manufacturers to ensure and then prove thattheir products have been made with constituent materials that havebeen responsibly sourced. The standard describes a framework foraddressing the organisational governance, supply chain managementand environmental and social aspects in ensuring the responsiblesourcing of construction products.

Independent, third party assessment and certification against therequirements of BES 6001 then gives the organisation the ability toprove that an effective system for ensuring responsible sourcingexists and adds credibility to any claims made.

Morton, T., *Feat of clay*, article in *Materials World*, January 2006 – the article discusses the use of unfired clay blocks for sustainableconstruction.

Fit-out benchmark & assessment tool

Materials

Issue

M02

ID

83

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Screed

Criteria

All screeds used, e.g. for floor repairs, replacement, build-up or levelling, meet at least one of the following criteria:

- if new, are manufactured with at least 50% recycled content and are 100% recyclable;
- if new, are sourced from a certified manufacturer with a BES 6001 'Good' or better performance rating; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

Any recycled and recyclable content claims must comply with ISO 14021: 1999 Type II Self-declared Environmental Claims and state knowledge of IAQ emissions.

Scoping

This measure applies if screed is specified or installed.

Assessment

At design stage: check specifications explicitly reference the criteria or specify a product that meets the criteria. For BES 6001: collate the certification documentation.

At handover stage: collate manufacturers' data for installed products responding to the criteria.

At occupancy stage: if screed has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and screed has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials. An environmental product declaration is a measurement of the lifetime environmental impact of a product. However, at this point in time there are very few products that have one of these labels and materials that just declare parts of the impacts are accepted, such as recycled and recyclable content and VOC emissions.

Fit-out benchmark & assessment tool

Materials
Issue

M03
ID

84
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Screed (continued)

Guidance

An example of recycled screed is where the sand normally used in screed can be replaced by recycled vitrified or amorphous glass.

The target for the recycled content of new screed is based on the targets set by WRAP. See *Choosing construction products: Guide to the recycled content of mainstream construction products, Reference guide*, GB Version 4.1, WRAP, June 2008.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

GreenSpec – a directory of sustainable construction products in the UK.

ISO 14025:2006

ISO 14021:1999

Ty-Mawr ecological building materials – contains information about recycled aggregates for screed.

BES 6001 *Responsible Sourcing of Construction Products*.

With the Government's increasing focus on sustainable development, many construction companies are recognising the need to prove that their buildings are constructed with sustainability in mind. One element of this is the responsible sourcing of products used in their construction and the onus of proof that is increasingly being passed on to the manufacturers of those construction products.

The BRE standard BES 6001 has been published to enable construction product manufacturers to ensure and then prove that their products have been made with constituent materials that have been responsibly sourced. The standard describes a framework for addressing the organisational governance, supply chain management and environmental and social aspects in ensuring the responsible sourcing of construction products.

Independent, third party assessment and certification against the requirements of BES 6001 then gives the organisation the ability to prove that an effective system for ensuring responsible sourcing exists and adds credibility to any claims made.

Fit-out benchmark & assessment tool

Materials
Issue

M03
ID

84
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

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Storage units

Criteria

All storage units meet at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 40% recycled content (measured by mass) and 90% recyclable content (measured by mass and designed for deconstruction with components that can be recycled);
- if new, have a Cradle to Cradle^{CM} Silver or higher certificate;
- if new, the company manufacturing the products is certified under the Furniture Industry Sustainability Programme (FISP) scheme;
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards; or
- have been awarded a Business and Institutional Furniture Manufacturers Association (BIFMA) 'level' certification.

And:

- if containing timber components, the timber meets the criteria of good practice measure **D20 Timber**.

Recycled content claims must comply with ISO 14021:1999 Type II *Self-declared Environmental Claims* and state knowledge of IAQ emissions.

Scoping

This measure applies if storage units are installed in any space, including those used in retail back-of-house.

It applies for both procurement routes: ordered and supplied through the main contractor or a subcontractor of the fit-out; or supplied by the occupant/tenant.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or obtain a statement of retention/reuse of existing storage units.

At occupancy stage: if storage units have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and storage units have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Fit-out benchmark & assessment tool

Materials
Issue

M21
ID

88
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Storage units (continued)

Guidance

Example of how to assess a storage unit containing timber as well as other materials:

If a storage unit is 60% timber and 40% steel, then all of the timber must be sourced from one of the four schemes (FSC/PEFC/SFI/CSA) or be reclaimed timber – as defined in good practice measure **D20 Timber**. The remaining 40% of the product, in this case steel, will need to meet one of the criteria listed above. In this example the manufacturer could demonstrate that the steel used in the storage unit contains 80% recycled steel.

Many suppliers may claim their products contain recyclable components and materials. However, components may be bonded in such a manner to prevent separation and recycling into individual waste streams or local recycling facilities may simply not exist for any given material. Unless a recycling facility can be explicitly identified that is able to reprocess the components and materials at a high level in the value chain, e.g. plastic elements are reprocessed into new furniture and not simply down-cycled into plastic bags or other lower value products, it is not acceptable to claim that a product is recyclable. Some suppliers overcome this issue by offering in house take-back and recycling schemes – although not an essential requirement to achieve this measure, the commitment of a supplier to take-back and recycle their products is an excellent source of evidence to support the claim that a product is recyclable.

Where recyclable content is identified a confirmed route for recycling into new products of a similar quality must be identified. The furniture manufacturer must clearly demonstrate and state that the 'recyclable' material does not degrade in quality after recycling and can be reused for a similar application. The aim is to promote a closed loop cycle of material use with minimal material waste.

Zero emissions from office, contract and kitchen furniture, BFM report funded by the TSB and concluded in 2008, including detailed impacts from a redesign of a tub chair example.

BFM (2002) Implications of sustainable development for UK reproduction furniture manufacturers. BFM Ltd, London.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

GreenSpec – a directory of sustainable construction products in the UK.

ISO 14025:2006

ISO 14021:1999

The Cradle to Cradle^{CM} program lists all the products that have been certified.

BFM Environment Projects (British Furniture Manufacturers).

FISP – Furniture Industry Sustainability Programme.

BIFMA Level – furniture environmental certification scheme.

EU Green Public Procurement – Furniture Product Sheet.

UK Defra – Goverment Buying Standards – Furniture Standards.

Fit-out benchmark & assessment tool

Materials

Issue

M21

ID

88

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Polishes and varnishes

Criteria

All polishes and varnishes meet at least one of the following criteria:

- are water based;
- have been awarded the EU Ecolabel; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

Note: although a selection above does not affect the assessment outcome, the criteria are presented in order of perceived highest sustainable impact.

Scoping

This measure applies if polishes or varnishes are specified or used.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria.

At handover stage: check materials used based on delivery notes and/or records of materials found during site visits.

At occupancy stage: if polishes and varnishes have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and polishes and varnishes have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Guidance

The EU Ecolabel scheme.

GreenSpec – a directory of sustainable construction products in the UK.

ISO 14025:2006

National Non-Food Crop Centre – the UK's national centre for renewable fuels, materials and technologies.

Guide to understanding the embodied impacts of construction products, Construction Products Association.

Fit-out benchmark & assessment tool

Materials

Issue

M15

ID

90

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Hard wall covering

Criteria

All wall coverings meet at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 70% recycled content (measured by mass) and 100% recyclable content (excluding wall tiles);
- if a new wall tile (ceramic, glass, clay, stone, porcelain), are manufactured with at least 50% recycled content and recyclable content, measured by mass;
- if new, have a Cradle to CradleCM Silver certification or above;
- if new, have an EU Ecolabel; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards;

And:

- if timber, meet the criteria of good practice measure D20 Timber;

And:

All adhesives used to fix the material to the wall must have been tested to EN 13999 standards and can show that carcinogenic and volatile organic compounds are absent, or that the adhesive is to have been awarded one of the following labels:

- Eurofins Indoor Air Comfort GOLD standard
- Blue Angel RAL-UZ 113
- M1 Emissions Class for Construction Products
- EMICODE EC2 or better
- Émissions dans l'Air Intérieur rated A+

Recycled content claims must comply with ISO 14021:1999 Type II Self-declared Environmental Claims and state knowledge of IAQ emissions.

Scoping

This measure applies if wall coverings are specified or installed.

Note: Wallpapers (both paper and vinyl) and paints are covered by good practice measures M16 and M14 respectively. This good practice measure covers all other products, such as tiles, wood, metal, etc.

Fit-out benchmark & assessment tool

Materials

Issue

M13

ID

92

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Hard wall covering (continued)

Assessment

At design stage: check specifications explicitly reference the criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or obtain a statement of retention/reuse of existing wall coverings.

All adhesives used to fix the product must be supplied with evidence confirming that they meet the relevant criteria.

At occupancy stage: if wall coverings have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and wall coverings have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Guidance

The reuse of existing hard wall coverings either from the stripping out of existing walls on site or from the purchase of second hand wall coverings is the most sustainable source.

The target for the recycled content of hard wall coverings is based on the target set for products, such as composite timber products, by WRAP. See *Choosing construction products: Guide to the recycled content of mainstream construction products*, Reference guide, GB Version 4.1, WRAP, June 2008.

The term 'recycled content' includes both post-consumer waste and secondary materials (defined as a waste by-product from a different industry). Processing waste recycled in-house should not be included in the recycled content calculations for the product.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

ISO 14025:2006

ISO 14021:1999

Guide to understanding the embodied impacts of construction products, Construction Products Association.

The Cradle to Cradle^{CM} program lists all the products that have been certified.

Fit-out benchmark & assessment tool

Materials

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M13

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Version

If you would like to comment on this measure please email **support@skarating.org**

Hard wall covering (continued)

Adhesives

A number of European countries have introduced labelling schemes to show the VOC emissions of various products used within the indoor environment:

- Blue Angel is a German voluntary environmental product label, whose category RAL-UZ 113 covers adhesives.
- M1 is a Finnish classification for low emissions.
- Eurofins is a label operated by Eurofins, a testing company. The 'gold' standard demonstrates compliance with all European VOC labels.
- EMICODE is a testing and classification of products based on emissions. The tested products include primers, levelling compounds, insulating underlays, mortars, adhesives, joint sealants and parquet coatings.
- *Émissions dans l'Air Intérieur* is compulsory VOC emission labelling in France only. It covers construction products installed indoors, floor and wall coverings, paints and lacquers. Products are rated from C to A+ ratings.

The UK has a set of standards for testing various construction products. One of the test requirements for these products is to test the formaldehyde emission levels. The standards for testing VOCs in adhesives (EN 13999-1:2007, and BS 3046:1981) also cover other VOCs.

Cranfield Institute of Environment and Health

Indoor Air Quality UK

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Materials

Issue

M13

ID

92

Rank

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If you would like to comment on this measure please email **support@skarating.org**

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Window treatments

Criteria

All window treatments meet at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 80% recycled content (measured by mass) and 100% recyclable content (designed for deconstruction with components that can be recycled);
- if new, have a Cradle to Cradle^{CM} Silver or higher certificate;
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards; or
- are supplied with environmental product declarations for the materials used.

And:

- if timber or containing timber components, the timber meets the criteria of good practice measure **D20 Timber**.

Recycled content claims must comply with ISO 14021:1999 Type II *Self-declared Environmental Claims* and state knowledge of IAQ emissions.

Scoping

This measure applies if window treatments are specified or installed.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or obtain a statement of retention/reuse of existing window treatments.

At occupancy stage: if window treatments have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and window treatments have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Guidance

Example of how to assess an item containing timber as well as other materials:

Fit-out benchmark & assessment tool

Materials
Issue

M23
ID

97
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Window treatments (continued)

If an item is 60% timber and 40% steel, then all of the timber must be sourced from one of the four schemes (FSC/PEFC/SFI/CSA) or be reclaimed timber – as defined in good practice measure **D20 Timber**. The remaining 40% of the product, in this case steel, will need to meet one of the criteria listed above.

Many suppliers may claim their products contain recyclable components and materials. However, components may be bonded in such a manner to prevent separation and recycling into individual waste streams or local recycling facilities may simply not exist for any given material. Unless a recycling facility can be explicitly identified that is able to reprocess the components and materials at a high level in the value chain, e.g. plastic elements are reprocessed into new furniture and not simply down-cycled into plastic bags or other lower value products, it is not acceptable to claim that a product is recyclable. Some suppliers overcome this issue by offering in house take-back and recycling schemes – although not an essential requirement to achieve this measure, the commitment of a supplier to take-back and recycle their products is an excellent source of evidence to support the claim that a product is recyclable.

Where recyclable content is identified a confirmed route for recycling into new products of a similar quality must be identified. The manufacturer must clearly demonstrate and state that the 'recyclable' material does not degrade in quality after recycling and can be reused for a similar application.

When choosing the type of material for blinds, particularly fabric blinds, the physical and environmental performance qualities of the material, and the wellbeing of the blinds' users, should be considered.

The ability to recycle fabric blinds with applied reflective coatings may be limited by the presence of the coating (check details with the specific manufacturer – some manufacturers operate sustainable practices of production and reclamation).

Note that both traditional and high performance fabrics (such as coated fabrics) can be found manufactured from recycled and recyclable material; however the benefit of a recyclable material is only realised if it is diverted from landfill and recycled; manufacturers should therefore be vetted for their reclamation policy.

Steel venetian blinds will be readily recyclable and may include recycled content; however the likelihood of recycling taking place will depend on the value of steel.

Timber blinds should be assessed for sustainability of timber sourcing. Timber blinds can readily be used as an energy source at the end of their useful life.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

The Cradle to Cradle^{CM} program lists all the products that have been certified.

GreenSpec – a directory of sustainable construction products in the UK.

Further accreditation for textile products can be found on the Oeko-Tex website.

ISO 14021:1999

Construction Products Association – *Guide to understanding the embodied impacts of construction products*.

Fit-out benchmark & assessment tool

Materials
Issue

M23
ID

97
Rank

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Version

If you would like to comment on this measure please email **support@skarating.org**

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Paper and towel dispensers

Criteria

All paper and towel dispensers meet at least one of the following criteria:

- are reused;
- if new, are manufactured with at least 80% recycled content (measured by mass) and 100% recyclable content (designed for deconstruction with components that can be recycled);
- if containing a material covered by other good practice measures, the material meets the criteria of the other measure; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

Recycled content claims must comply with ISO 14021:1999 Type II *Self-declared Environmental Claims* and state knowledge of IAQ emissions.

Scoping

This measure applies if paper/towel dispensers are specified, retained and modified, replaced or installed.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or obtain a statement of retention/reuse of existing dispensers.

At occupancy stage: if dispensers have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and dispensers have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Fit-out benchmark & assessment tool

Materials
Issue

M24
ID

99
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Paper and towel dispensers (continued)

Guidance

Many suppliers may claim their products contain recyclable components and materials. However, components may be bonded in such a manner to prevent separation and recycling into individual waste streams or local recycling facilities may simply not exist for any given material. Unless a recycling facility can be explicitly identified that is able to reprocess the components and materials at a high level in the value chain, e.g. plastic elements are reprocessed into new furniture and not simply down-cycled into plastic bags or other lower value products, it is not acceptable to claim that a product is recyclable. Some suppliers overcome this issue by offering in house take-back and recycling schemes – although not an essential requirement to achieve this measure, the commitment of a supplier to take-back and recycle their products is an excellent source of evidence to support the claim that a product is recyclable. Where recyclable content is identified a confirmed route for recycling into new products of a similar quality must be identified. The product manufacturer must clearly demonstrate and state that the 'recyclable' material does not degrade in quality after recycling and can be reused for a similar application. The aim is to promote a closed loop cycle of material use with minimal material waste.

Durable and low embodied-energy products should be preferred, with the ability to recycle at their end of use.

The greatest environmental impact of paper dispensers is through the use of consumables, so a conscious reduction of waste by users should be encouraged. The WWF commissioned a paper towel dispenser that visually reminded users of resource depletion.

Further accreditation for textile products can be found on the Oeko-Tex website.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

GreenSpec – a directory of sustainable construction products in the UK.

ISO 14025:2006

ISO 14021:1999

Construction Products Association – *Guide to understanding the embodied impacts of construction products*.

Fit-out benchmark & assessment tool

Materials

Issue

M24

ID

99

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Wall covering

Criteria

All wall coverings meet at least one of the following criteria:

- if new, are manufactured with at least 40% recycled content;
- if new, have a Cradle to Cradle^{CM} Silver – Platinum certificate; or
- are supplied with an environmental product declaration, written in accordance with ISO 14025 standards.

And:

- where paper-based wallpaper is specified, meet the criteria of **D20 Timber**.

Recycled content claims must comply with ISO 14021:1999 Type II *Self-declared Environmental Claims* and state knowledge of IAQ emissions.

Scoping

This measure applies if wallpaper is specified or installed.

The criteria apply to paper, paper backed vinyl, vinyl and woven and non-woven fibre fabric-backed wall coverings.

Assessment

At design stage: check specifications explicitly reference at least one of the above criteria or specify a product that meets the criteria.

At handover stage: collate manufacturers' data for installed products responding to the criteria or provide a statement of retention/reuse of existing wall coverings.

At occupancy stage: if wallpaper has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and wallpaper has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the embedded lifetime environmental impacts of materials that can be estimated using life cycle analysis (LCA). LCA takes account of environmental impacts over the lifetime of a product, for example the impact arising from mineral extraction, manufacturing, transport and end-of-life disposal. LCA is the basis of environmental product declarations and environmental preference methods for materials selection.

Guidance

The term 'recycled content' includes both post-consumer waste and secondary materials (defined as a waste by-product from a different industry). Processing waste recycled in-house should not be included in the recycled content calculations for the product.

Fit-out benchmark & assessment tool

Materials
Issue

M16
ID

101
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Wall covering (continued)

Where recyclable content is identified, a confirmed route for recycling into new products of a similar quality must be identified.

The manufacturer must clearly demonstrate and state that the 'recyclable' material does not degrade in quality after recycling and can be re-used for a similar application.

Adhesives

A number of European countries have introduced labelling schemes to show the VOC emissions of various products used within the indoor environment:

- Blue Angel is a German voluntary environmental product label, whose category RAL-UZ 113 covers adhesives.
- M1 is a Finnish classification for low emissions.
- Eurofins is a label operated by Eurofins, a testing company. The 'gold' standard demonstrates compliance with all European VOC labels.
- EMICODE is a testing and classification of products based on emissions. The tested products include primers, levelling compounds, insulating underlays, mortars, adhesives, joint sealants and parquet coatings.
- *Émissions dans l'Air Intérieur* is compulsory VOC emission labelling in France only. It covers construction products installed indoors, floor and wall coverings, paints and lacquers. Products are rated from C to A+ ratings.

The UK has a set of standards for testing various construction products. One of the test requirements for these products is to test the formaldehyde emission levels. The standards for testing VOCs in adhesives (EN 13999-1:2007, and BS 3046:1981) also cover other VOCs.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

Guide to understanding the embodied impacts of construction products, Construction Products Association.

The Cradle to Cradle^{CM} program lists all the products that have been certified.

ISO 14025:2006

ISO 14021:1999

Useful information about more sustainable types of wall covering can be found in the following publications:

Anink, D. et al, *Handbook of sustainable building: An environmental preference method for selection for materials for use in construction and refurbishment,* James and James Ltd, 1996.

Woolley, T. et al, *Green Building Handbook, Volume 1*, Taylor and Francis, 1997.

Woolley, T. et al, *Green Building Handbook, Volume 2*, Taylor and Francis, 2000.

Cranfield Institute of Environment and Health

Indoor Air Quality UK.

Fit-out benchmark & assessment tool

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Total recycled materials

Criteria

All the materials that fall within the scope of the Materials good practice measures in the scheme being assessed are:

- reused; or
- meet the requirements for the % recycled and recyclable content of those good practice measures.

Note: a product can be considered to have been reused where it is salvaged and used for its original intended purpose or where the majority of component parts of the product are remanufactured into new products without significant reprocessing.

Recycled content claims must comply with ISO 14021:1999 Type II Self-declared Environmental Claims and state knowledge of IAQ emissions.

Scoping

This measure applies to all new materials covered by the **Materials** good practice measures in the scheme being assessed and all materials included on the finishes schedule. This measure is in scope as soon as at least one of the **Materials** measures is in scope.

Assessment

At design stage: check specifications explicitly reference one of the above criteria.

At handover stage: check installed materials and invoices.

At occupancy stage: if any materials have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and materials have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to encourage the use of reclaimed and recycled materials in order to reduce the embedded lifetime environmental impacts of materials.

This is an overarching measure that rewards projects where all materials installed in the fit-out are selected with consideration to their environmental credentials.

Fit-out benchmark & assessment tool

Materials
Issue

D21
ID

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SKA Offices 1.2 2013
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If you would like to comment on this measure please email **support@skarating.org**

Total recycled materials (continued)

Guidance

See individual good practice measures for guidance (M01, etc).

Where recyclable content is identified a confirmed route for recycling into new products of a similar quality must be identified.

The manufacturer must clearly demonstrate and state that the 'recyclable' material does not degrade in quality after recycling and can be re-used for a similar application.

Calculating and declaring recycled content in construction products, 'Rules of Thumb' guide, WRAP.

Construction Products Association – Guide to understanding the embodied impacts of construction products.

ISO 14021:1999: Environmental labels and declarations – Selfdeclared environmental claims (Type II environmental labelling).

Fit-out benchmark & assessment tool

Materials
Issue

D21
ID

102
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

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Materials specification

Criteria

All the materials that fall within the scope of the **Materials** good practice measures in the scheme being assessed meet the requirements of those measures.

Scoping

This measure applies to all new materials covered by the **Materials** good practice measures in the scheme being assessed and all materials included on the finishes schedule. This measure is in scope as soon as at least one of the **Materials** measures is in scope.

Assessment

At design stage: check specifications explicitly reference one of the above criteria.

At handover stage: check installed materials and invoices.

At occupancy stage: if materials have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and materials have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the environmental impact of the production, use of, and disposal of building materials.

This is an overarching measure that rewards projects where all materials installed in the fit-out are selected with consideration to their environmental credentials.

Guidance

See individual good practice measures for guidance (M01, etc).

Fit-out benchmark & assessment tool

Materials

Issue

D19

ID

104

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Low-GWP insulation

Criteria

The manufacture and installation of all new insulants only uses products that have a Global Warming Potential (GWP) of less than five.

Scoping

This measure applies if any new insulants (either thermal or acoustic) are used in the building fabric, partitions and building services.

The criteria apply both to products the insulants are manufactured from, and any products, such as blowing agents, used in their manufacture.

Assessment

At design stage: check written specifications/contracts state all insulants must have a GWP of less than five. If the product and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: obtain the product and manufacturer from the invoice and check the manufacturer's literature.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce the use of materials that cause global warming.

Guidance

Products that do not use a blowing agent and comply with this measure include:

- mineral fibre products such as rock wool, slag wool or glass wool;
- plant/animal fibre products such as sheep's wool, cotton, flax, straw or recycled newspaper; and
- cellular plant derived products such as cork.

For products that use a blowing agent, the name of the blowing agent must be identified and checked to determine its GWP, as these agents can have a high GWP. These types of insulants include:

- cellular plastic products: rigid polyurethane, (PUR/PIR), phenolic, XPS and EPS; and
- cellular mineral products: foamed glass and aerated concrete.

Examples of blowing agents that have a GWP of less than five are air, CO2, pentane and isobutene.

GreenSpec – a directory of sustainable construction products in the UK.

Fit-out benchmark & assessment tool

Pollution
Issue

D22
ID

14
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Low-impact refrigerants

Criteria

The systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤1000 kgCO2e/kW cooling capacity.

Scoping

This measure applies if any new refrigerants are used in the building services.

Assessment

At design stage: obtain confirmation from the designer that the proposed refrigerant containing systems meet the criteria. Calculations that demonstrate compliance with the criteria should be conducted in accordance with BS EN 378-1 and be provided for confirmation. If the product and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: obtain manufacturers/installers calculations of DELC, conducted in accordance with BS EN 378-1, along with manufacturer's literature to support the calculations. Check the manufacturer's literature to determine the refrigerant and check the DELC calculations in line with BS EN 378.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce the use of materials that cause global warming.

Guidance

BS EN 378-1 – *Refrigerating systems and heat pumps. Safety and environmental requirements. Basic requirements, definitions, classification and selection criteria*.

Guideline Methods of Calculating TEWI, British Refrigeration Association's (BRA).

CFCs, HCFCs and halons: professional and practical guidance on substances that deplete the ozone layer, GN1, CIBSE, 2000 – contains a list of common refrigerants and their associated GWP.

Fit-out benchmark & assessment tool

Pollution
Issue

D23
ID

15
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

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Refrigerant leak prevention

Criteria

Refrigerant systems must be designed to prevent leaks using these standards:

- BS EN378: 2008 Refrigerating Systems and Heat Pumps: Safety and Environmental Requirements
- REAL Zero's guidance:
  - Designing out leaks: design standards and good practices
  - Guide to good leak testing
  - Leakage matters: the service and maintenance contractor's responsibilities.

Scoping

This measure applies where any new refrigerant systems are installed or changes are made to an existing system.

It does not apply to systems:

- with a refrigerant charge of under 5kg; or
- where the refrigerant has a GWP of less than five.

Assessment

At design stage: check the written specifications/contracts include the requirements to comply with the criteria.

At handover stage: obtain records to show that all relevant refrigerant systems have been installed and tested in accordance with the criteria. Ensure that indicative examples of where and how the strategy complies with the standards/guidance are provided.

At occupancy stage: check records to ensure that servicing and maintenance is been carried out in accordance with the required British Standard and relevant REAL Zero guidance. Review the occupier's maintenance records to ensure the equipment is being used and maintained correctly and has not been disabled.

Rationale

The aim is to reduce the emission of refrigerants into the atmosphere in the event of a leak. The emission of refrigerants has a four-fold effect:

- Environmental impact – many refrigerants damage the ozone layer and most also contribute to global warming.
- Higher running costs – leakage of refrigerant reduces efficiency.
- Increased servicing costs.
- Health and safety hazards – if located in confined spaces, exposure levels could potentially be exceeded, leading to suffocation if sufficient loss and displacement of air occurs.

Fit-out benchmark & assessment tool

Pollution
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Refrigerant leak prevention (continued)

Guidance

BS EN378: *2008 Refrigerating Systems and Heat Pumps: Safety and Environmental Requirements*. British Standard. 2009.

Designing out leaks: design standards and good practices. REAL Zero. 2009.

Guide to good leak testing. REAL Zero. 2009.

Leakage matters: the service and maintenance contractor's responsibilities. REAL Zero. 2009.

Fit-out benchmark & assessment tool

Pollution
Issue

D57
ID

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Rank

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Refrigerant leak detection

Criteria

Refrigerant leak detection systems are implemented.

- For internal plant rooms: a refrigerant leak detection system is specified and installed that uses fixed multi-point gas detectors and samples air in a number of locations.
- For rooftop and non-air-tight locations: a refrigerant leakage/ charge loss detection system is specified that is not based on the principle of detecting or measuring the concentration of refrigerant in air (e.g. the detection of refrigerant pressure drops, indicating leakage).

Scoping

This measure applies where refrigerant systems with a refrigerant charge of over 5kg are installed. It does not apply where systems using refrigerants with a GWP of less than five are being installed.

Assessment

At design stage: check written specifications/contracts confirm this equipment will be installed.

At handover stage: obtain the product and manufacturer from the invoice and check the manufacturer's literature.

At occupancy stage: review the occupier's maintenance records to ensure this equipment is being used and maintained correctly and has not been disabled.

Rationale

The aim is to reduce the emissions of refrigerants to the atmosphere in the event of a leak. The emission of refrigerants has a four-fold effect:

- Environmental impact – many refrigerants damage the ozone layer and most also contribute to global warming.
- Higher running costs – leakage of refrigerant reduces efficiency.
- Increased servicing costs.
- Health and safety hazards – if located in confined spaces, exposure levels could potentially be exceeded, leading to suffocation if sufficient loss and displacement of air occurs.

The following types of leak detection will not achieve this measure:

- an 'indirect' system that monitors parameters in the refrigeration system (such as pressures, temperatures and liquid levels) and calculates whether a leak is present that is not monitored in 'real time'.

Fit-out benchmark & assessment tool

Pollution
Issue

D24
ID

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Rank

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Refrigerant leak detection (continued)

Guidance

CFCs, HCFCs and halons: professional and practical guidance on substances that deplete the ozone layer, GN1, CIBSE, 2000 – contains a list of common refrigerants and their associated GWP.

Code of practice for refrigerant leak tightness in compliance with the F-gas regulation, British Refrigeration Association, 2007.

Code of practice for the minimisation of refrigerant emissions from refrigerating systems, Institute of Refrigeration, 1995.

Guide 4: R22 Phase Out and F-Gas Regulations, Food & Drink Industry – Refrigeration Efficiency Initiative, Carbon Trust Networks Project, 2007.

Fit-out benchmark & assessment tool

Pollution
Issue

D24
ID

60
Rank

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Version

If you would like to comment on this measure please email **support@skarating.org**

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Reduce light pollution

Criteria

All lighting control motion detector time lags are reduced to a maximum of 10 minutes and lighting lux levels are reduced between the hours of 23.00 and 07.00 in accordance with Table 1 of ILE GN01 (see guidance below).

Scoping

This measure applies if external lighting and signage is specified as part of the fit-out.

Assessment

At design stage: check specifications and drawings.

At handover stage: review as-built drawings and check invoices to ensure that the specified equipment was purchased.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce disturbance from night time light pollution to neighbours.

Guidance

Guidance notes for the reduction of obtrusive light, GN01, The Institution of Lighting Engineers, 2005.

Fit-out benchmark & assessment tool

Pollution
Issue

D26
ID

100
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

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Refrigerant recovery

Criteria

Refrigerant recovery systems are implemented.

- For fixed multi-point refrigerant leak detection systems – an automated refrigerant leak recovery system is specified and installed. When a leak is detected, the system must have the capacity to automatically evacuate the refrigerant into a separate cylinder, to minimise release of refrigerant emissions to the atmosphere.
- For manual refrigerant leak detection systems – when a leak is manually detected, the system must have the capacity to transfer the refrigerant into a suitable external storage container. The refrigerant should not be purged from the system into the atmosphere.

Scoping

This measure applies only if centralised HVAC systems are installed.

It does not apply when split units or any systems using hydrocarbon and ammonia-based refrigerants with a GWP less than five are being installed.

Assessment

At design stage: check written specifications/contracts confirm this equipment will be installed.

At handover stage: obtain the product and manufacturer from the invoice and check the manufacturer's literature.

At occupancy stage: review the occupier's maintenance records to ensure this equipment is being used and maintained correctly and has not been disabled.

Rationale

The aim is to reduce the emissions of refrigerants to the atmosphere in the event of leakage. It is an offence under sections 33(1)(c) and 34 of the *Environmental Protection Act* 1990 to deliberately or negligently discharge environmentally-damaging substances into the atmosphere.

Once a system has been identified as having a leak it is necessary to remove refrigerant from the section concerned and isolate the leaking component or section of the system. Pumping the system down in order to achieve this is unlikely to be sufficient, recovery of the refrigerant will be necessary. To recover the vapour left in the system, utilisation of recovery machines will be necessary (British Refrigeration Association, 2007).

Fit-out benchmark & assessment tool

Pollution
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D27
ID

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Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

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Refrigerant recovery (continued)

During repair, maintenance or decommissioning of refrigerant systems the following recovery options should be employed:

- recover and reuse refrigerant in the original system;
- recover, recycle and reuse by original owner;
- recover, reclaim and reuse by original owner;
- recover, reclaim and make available for reuse by others;
- recover and destroy.

Guidance

Code of practice for refrigerant leak tightness in compliance with the F-gas regulation, British Refrigeration Association, 2007.

Code of practice for the minimisation of refrigerant emissions from refrigerating systems, Institute of Refrigeration, 1995.

Safety code for refrigerating systems utilising group A3 refrigerants, Institute of Refrigeration, 2001.

Fit-out benchmark & assessment tool

Pollution

Issue

D27

ID

103

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Limiting plant noise

Criteria

- Either a noise impact assessment in compliance with BS 4142:1997 is undertaken or the landlord/developer has previously commissioned a noise impact assessment in compliance with BS 4142:1997.
- Either the report shows that new plant will not create a noise level more than 5dB above existing background noise levels or the report provides recommendations for acoustic insulation to ensure that any new installed plant will not create a noise level more than 5dB above existing background noise levels.
- The installed plant and/or acoustic insulation meets the requirements of the report.

Scoping

This measure applies if new plant is being installed that will generate external noise.

Assessment

At design stage: ensure a noise impact assessment has been carried out (either as part of the project or previously). Obtain a copy of the report and check that it meets the criteria. Check the drawings and/or specifications to ensure that the proposed plant and proposed attenuation measures meet the requirements.

At handover stage: confirm with as-built drawings and a site visit that there have been no changes to the building since the impact assessment was undertaken. Also check that the installed plant and/or acoustic insulation meets the report's recommendations.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce the impact of operational noise from new plant on the surrounding environment.

Guidance

This measure usually applies to HVAC plant, but would also apply to any other installed plant that generates external noise.

Method for rating industrial noise affecting mixed residential and industrial areas, BS 4142:1997, BSI, 1997.

Sound insulation and noise reduction for buildings. Code of practice, BS 8233:1999, BSI, 1999.

Fit-out benchmark & assessment tool

Pollution

Issue

D25

ID

106

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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NO_X emissions

Criteria

NO_X emissions from space heating and domestic hot water should be less than 40 mg/kWh. These are dry NO_X emissions measured at 0% excess O_2, using the test standards defined in BS EN 483:1999+A4:207.

Scoping

This is in scope when new space heating and/or domestic hot water systems are installed.

Small 'point of use' electric heaters are excluded, i.e. heaters in a tea point or WC.

Assessment

At design stage: check that written specifications and/or contracts state that the above requirements will be met.

At handover stage: check manufacturer's technical datasheets and invoices to confirm the NO_X emissions of the heaters that have been installed.

At occupancy stage: check that the heater has not been replaced with another heater. Check maintenance records to ensure that the heater has been serviced according to the manufacturer's requirements and so is operating at maximum efficiency.

Rationale

NO_X emissions from heating systems cause external pollution and affect people's health. Many gas boilers are now being designed to minimise NO_X emissions and there are models on the market that produce less than 30mg/kWh.

Guidance

Any system powered by grid electricity (e.g. air source heat pumps, ground source heat pumps or combined heat and power (CHP) systems) will not meet the requirements of this measure; but it will still be in scope (unless it is a point of use heater). This is because NO_X emissions associated with power stations are in excess of 700mg/kWh.

If more than one heater is installed, then each heater must meet the requirements of this measure before the measure can be awarded.

European Standard BS EN 483:1999+A4:207 incorporating corrigendum June 2006. *Gas fired central heating boilers – Type C Boilers of nominal heat output not exceeding 70kW.*

Fit-out benchmark & assessment tool

Pollution
Issue

D58
ID

107
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

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CCS registration

Criteria

When the construction period is 6 weeks or more:

- the site is registered with the Considerate Constructors Scheme (CCS) for site registration and the site achieves a score of at least 35 points out of 50.

When the construction period is less than 6 weeks:

- the contractor is registered with the Considerate Constructors Scheme (CCS) for company registration, and the contractor can demonstrate that over the preceding 12 months it has obtained a company certificate of compliance.

Scoping

This measure applies to all fit-outs.

Assessment

At design stage: check the site or contractor is registered, or there is a contractual commitment to register with the scheme and achieve the target set in the criteria above.

At handover stage: look at the site monitoring reports to confirm the score achieved by the site or check that the contractor is registered with the Considerate Constructors Company Registration Scheme (CCS) and can demonstrate it has obtained a company certificate of compliance over the preceding 12 months.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to promote the management of the construction site in an environmentally responsible and sustainable manner.

Guidance

Significant changes to the Considerate Constructors Scheme (CCS) came into effect on 1 January 2013.

The CCS has launched a new five-point *Code of Considerate Practice,* a new checklist to support this code and a revised scoring system. This has been done to provide a greater challenge to the higher performing sites, to realign the scheme with accepted industry values and to address areas of overlap or confusion within the existing checklist. The scoring has also been revised to drop compliance from 60% to 50% and to make the higher scores significantly harder to achieve.

Under the 2012 scheme a score of 32 points reflected an average score of 4 in each of the eight sections. The equivalent to this in the new system is 7 out of 10 in each of five sections, so a total score of 35 out of 50.

Fit-out benchmark & assessment tool

Project Delivery
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SKA Offices 1.2 2013
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If you would like to comment on this measure please email **support@skarating.org**

CCS registration (continued)

The key issues that the scheme aims to assess are:

The neighbourhood and general public

Registered sites and companies should do all they can to reduce any negative impact on anyone affected by their work and they should aim to leave a positive impression on their neighbours.

The workforce

Registered sites and companies should do all they can to be a considerate employer. They should provide clean and appropriate facilities for those who work for them. Facilities should be comparable to those provided in any other working environment.

The environment

Registered sites and companies should do all they can to reduce any negative effect they have on the environment. They should work in an environmentally conscious and sustainable manner.

Fees for registration depend on the site size and contractor size. Examples of the fees (as of Jan 2012) are:

- the site registration fee for projects up to £100,000 is £100 plus VAT; and
- the company registration fee for an organisation with an annual turnover of less than £3.5m is £500+VAT per year.

Fit-out benchmark & assessment tool

Project Delivery

Issue

D44

ID

16

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Soft landings framework

Criteria

The client must adopt the soft landings framework as the tool for providing an integrated team approach to design and commissioning during the design phase, construction phase and occupancy phase.

Scoping

This measure is in scope for all projects and is especially relevant when any mechanical, electrical (including automated lighting controls) or public health systems are being installed or modified.

Assessment

At design stage:

- The design brief should show that BSIRA's soft landings framework has been adopted for managing the commissioning of the systems that are being installed.
- Contracts should show that design team members and the contractor have been appointed to carry out the soft landings post-occupancy work.
- Contracts, a letter of appointments or design specifications should confirm that post-occupancy evaluation (POE) services will be undertaken.
- Workshop or meeting minutes should confirm that workshops or meetings have been held to review the performance of the interior fit-out.

At handover stage:

- Plans for handover checks that cover the six-week period posthandover, as well as the pre-handover period.
- Evidence that the facilities manager has been involved during the pre-handover phase.
- Evidence that operational duties for operational management, e.g. of the BMS, have been allocated and fully documented, and training has been provided to these people.
- Commissioning reports.
- Evidence that the aftercare team has been allocated a visible and accessible workspace in the new fit-out space. The size and complexity of the project will determine whether their presence is permanent or during specified hours, and how many people.

At occupancy stage:

- Evidence that suitable aftercare has been provided for the first six to eight weeks of occupation.
- Evidence that after the first weeks of occupation, periodic reviews are being carried out.
- Evidence that the systems have been fine tuned, especially lighting and HVAC, to take account of occupant feedback, weather and occupancy.

Fit-out benchmark & assessment tool

Project Delivery

Issue

D56

ID

31

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

Soft landings framework (continued)

Rationale

CIBSE and BSRIA have provided guides for commissioning of mechanical, electrical and public health systems, which provide guidelines for carrying out tasks at specific points in the build process.

BSRIA developed the concept of 'soft landings' to extend the commissioning process so that it starts at RIBA stage B and continues for three years after practical completion. The aim is to shift the focus of good practice from adherence to technical outcomes to performance outcomes, i.e. ensuring that the building benefits the occupants.

Guidance

BSRIA provide two guides, referenced below, that detail how to implement the soft landings framework. Appendix E in the pitstopping guide (BG 27/2011), provides an example of a plan and diary of how soft landings should be carried out on a weekly basis.

The Soft Landings Framework: for better briefing, design, handover and building performance in use. BG 4/2009. BSRIA 2009.

Pitstopping. BSRIA's reality-checking process for soft landings. BG 27/2011. Roderic Bunn. BSRIA. 2011. Free to BSRIA members, £30 non-members.

Fit-out benchmark & assessment tool

Project Delivery
Issue

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ID

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SKA Offices 1.2 2013
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If you would like to comment on this measure please email **support@skarating.org**

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Building user guide

Criteria

A building user guide (BUG) is provided that will inform and guide the tenants/ occupants and non-technical building management staff on the operation and environmental performance of the space and how to ensure a high level of environmental operation on a day to day basis.

The guide should be a light-weight tool, depending on project size or complexity, but not exceed more than 10 pages or the equivalent amount in a digital or online format.

Scoping

This measure applies to all fit-outs.

Assessment

At design stage: there should be a written commitment that a BUG will be produced. The organisation responsible for producing the BUG should have been identified and this work should be within their contract.

At handover stage: review the BUG to ensure that it clearly contains the following:

- the design thinking and criteria used on each greener practice/item in the scope;
- simple & clear information on how to operate each item in the scope of the fit-out on a day-to-day basis;
- proposals for using the latest greener maintenance services on the market and end of life-cycle solutions for the disposal of products and materials; and
- a list of operational activities that create a positive environmental impact.

At occupancy stage: ensure that the guide is still accessible to all staff. If the occupancy assessment indicates that changes have been made to the floors being assessed, then check that the guide reflects these changes.

Rationale

The aim of the building user guide is to reflect the project scope and provide the design and principle thinking behind every Ska-rated measure and any other good intentions that are unrated but that instil greener practices in the project.

The guide should inform all users and operators of the greener practices applied to the space to enable occupants to optimise operational building efficiency.

The guide can be part of the operation and maintenance (O&M) manual but must also have the ability to be separated and issued to staff for information annually or at new staff inductions.

Fit-out benchmark & assessment tool

Project Delivery

Issue

D45

ID

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Rank

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Building user guide (continued)

Guidance

Each client will have a different way of using the BUG and it can be integrated into staff training manuals given out during inductions or be part of a wider A-to-Z staff operation manual.

Building Log Books – a user's guide, Good Practice Guide 348, Carbon Trust, 2003.

'Section 6: Providing Information' from The Building Regulations 2000, Approved Document Part L2A: *Conservation of fuel and power in new buildings other than dwellings* (2010 edition).

Edocuments – an accredited CIBSE building log book developer. Guide L: Sustainability, CIBSE, 2007.

WRAP – the waste and resource action programme.

A suggested list of contents:

- purpose of the BUG and individual responsibilities;
- occupant information;
- overall building/space design and operation principles;
- summary of Ska Rating scope and score;
- summary of areas, occupancy, WC provisions and fire strategy;
- summary of the DDA provisions and Access Statement for the facility;
- principles for the material selections and item-specific user operational guidance such as furniture reusing, carpet tile recycling and linoleum cleaning;
- building waste, recycling and reuse monitoring records and targeting strategy;
- overview of controls/BMS;
- metering, monitoring and targeting strategy;
- building energy performance records;
- results of in-use investigations; and
- a reference page to other relevant documents.

Fit-out benchmark & assessment tool

Project Delivery

Issue

D45

ID

53

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Cycle parking

Criteria

Secure, lockable cycle racks are provided, and:

- Where occupancy is unknown, one space per 100m2 net internal area is provided; or
- where occupancy is known, one space per every 10 people is provided.

Note: When carrying out the calculation the number must be rounded up, i.e. if there is 420m^2 of floor space and occupancy is unknown then five cycle spaces must be provided.

Scoping

This measure applies if there is tenant core/external space (including existing parking) with suitable access.

Assessment

At design stage: check specifications and drawings meet the criteria.

At handover stage: check as-built drawings and carry out a site visit to ensure it meets the criteria.

At occupancy stage: if cycle racks have been changed or reduced then carry out the handover stage assessment. If this measure was achieved at handover stage and the cycle racks have not been changed or reduced in number, this measure will be achieved by default.

Rationale

The aim is to encourage staff to cycle to work.

Guidance

Ideally cycle spaces should be covered, well lit and secure. Design guidelines can be found in *Cycle parking* (Sustrans Information Sheet FF37).

Sustrans also produce an information sheet called *Active travel in the workplace: planning for an active workforce* which provides additional information.

A number of local councils are producing guidelines too, which recommend one space per 125–350m^2 of floor space. See Transport for London's *Workplace cycle parking guide*.

Fit-out benchmark & assessment tool

Transport

Issue

D41

ID

17

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Showers

Criteria

For staff numbers up to 100, one shower is provided. For every additional 100 staff (or part thereof), another shower is provided. All showers must be available for use by all staff.

Scoping

This measure applies if there is sufficient tenant core/washroom space with suitable access.

This measure is always in scope for the following types of retail unit:

- restaurants, with commercial kitchens;
- car showrooms with maintenance facilities;
- garden centres (units with manual labour or occupants that create dirt); and
- other facilities where staff are involved in hot, malodorous, grimy or manual activities.

Assessment

At design stage: check specifications explicitly reference the criteria.

At handover stage: carry out a site visit to check the criteria are met.

At occupancy stage: if showers have been changed or reduced then repeat the design and handover stage assessments. If this measure was achieved at handover stage and the showers have not been changed or reduced in number, it will be achieved by default.

Rationale

The aim is to encourage staff to cycle to work by providing showers so that staff can freshen up after their cycle ride.

Showers are also required for retail spaces where staff need to shower before they leave work because of the nature of their work. Note: this is more of a well-being issue than a transport issue, but has been included within this measure as only one assessment of the number of showers is required.

Guidance

Active travel in the workplace – What's right for your organisation?, Sustrans, 2008.

A guide for employers – getting your workplace cycle friendly, London Cycling Campaign.

Fit-out benchmark & assessment tool

Transport

Issue

D42

ID

54

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Construction phase CO_2 emissions

Criteria

The principal contractor must develop and implement a site-specific construction travel plan prior to the start of construction. This should state the predicted road transport movements according to the design and work plan. The plan should identify ways to reduce these movements.

The principal contractor must monitor all road vehicle movements to and from the site, including:

- delivery of materials and plant to site; and
- movement of waste off site.

The following should be recorded and displayed on site: vehicle distance to and from site, types of vehicle used, and the calculated CO_2 emissions.

Scoping

This measure applies to all fit-outs.

Assessment

At design stage: review the site-specific construction travel plan prior to commencement on site.

At handover stage: confirm at handover that the recommendations to reduce vehicle movements on site have been carried out and that all vehicle movements are being monitored with spreadsheet outputs and photographic evidence on site notice boards.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

Transport accounts for 10–20% of construction costs. CBI estimate the annual cost of road congestion to the economy is £20 billion. Construction vehicles account for a proportion of this congestion, and construction sites suffer from poor reliability of deliveries.

Reducing site transport is possible and can cut costs. Financial and productivity benefits of adopting a more efficient approach to transport and logistics include:

- reduced fuel and delivery costs;
- increased delivery efficiency and reliability;
- reduced costs for parking; and
- increased profitability.

Transport issues can only be addressed if they are accounted for from inception, including the design team and supply chain.

Fit-out benchmark & assessment tool

Transport
Issue

D59
ID

93
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Construction phase CO_2 emissions (continued)

Guidance

Construction Site Transport: The Next Big Thing, 2003, BRE and DTI. This document outlines a number of ways to minimise vehicle movement, as noted below:

- For sites in urban areas, consider group transport for the workforce, and provide facilities to encourage use of public transport.
- For materials, use local suppliers, share deliveries and arrange with the supplier to send vehicles back full with off-cuts or other waste.
- Offsite construction – leading to reduced waste, reduced workforce and reduced transport – can reduce the number of movements, but may not reduce distances, and larger loads can cause more disturbance to neighbours.
- Where viable, utilise Consolidation Centres (see Constructing Excellence), which can provide an effective supply chain management solution to enable the safe and efficient flow of construction materials and equipment from supplier to the project. The Consolidation Centres concept was specifically developed to serve the materials handling needs of multiple construction sites in busy and challenging environments, such as airports and inner city areas.

To convert transport to CO_2 refer to:

- DECC GHG Emission Conversion Factors 2012; or
- The Carbon Trusts, Energy & Carbon conversions 2011.

Fit-out benchmark & assessment tool

Transport

Issue

D59

ID

93

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Cyclist lockers

Criteria

One locker per cycle space is provided.

Scoping

This measure applies if there is sufficient tenant core/internal space with suitable access.

Assessment

At design stage: check specifications explicitly reference the criteria.

At handover stage: carry out a site visit to ensure the criteria are met.

At occupancy stage: if lockers have been changed or reduced then carry out the design and handover stage assessments. If this measure was achieved at handover stage and the lockers have not been changed or reduced in number, it will be achieved by default.

Rationale

The aim is to encourage staff to cycle to work by providing lockers where staff can store clothes and cycle equipment.

Guidance

A guide for employers – getting your workplace cycle friendly, London Cycling Campaign.

Fit-out benchmark & assessment tool

Transport

Issue

D43

ID

95

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

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Designing out waste

Criteria

The design team must use the WRAP "Designing out Waste Tool for Buildings" (DoWT-B) to identify opportunities to design out waste in the fit-out and to record the design solutions pursued in reducing material consumption and wastage.

Where the project's scope is not covered by the DoWT-B tool, the team must provide a record of drawings, specifications and/or discussion notes/ minutes that demonstrate design solutions reducing material consumption and wastage.

Scoping

This measure applies to all fit-outs.

Assessment

At design stage: review the output of the DoWT-B or other records detailing design solutions followed to reduce material consumption and wastage.

At handover stage: confirm at handover, using as-built drawings/ specifications, that the proposed design solutions from the DoWT-B or elsewhere have been implemented for the fit-out.

At occupancy stage: this measure is not assessed. It is achieved by default if it was achieved at handover stage.

Rationale

The construction industry is the UK's largest consumer of natural resources, using over 400 million tonnes of material per annum. The construction industry is also responsible for sending around 9.7 million tonnes of construction, demolition and excavation waste to landfill annually, without any form of recovery or reuse (2009 figures). More efficient use of materials would be a major contribution in reducing the environmental impact of construction, including reducing demand for landfill and the depletion of finite natural resources. It would also contribute to the economic efficiency of the sector and of the UK as a whole.

Guidance

This measure is in scope for all fit-outs as it includes a review of the supply chain and packaging used by material suppliers.

WRAP: *Designing out Waste: a design team guide for buildings.*

WRAP: *Design detailing sheets* – useful guides on door, tilling and plumbing design approaches amongst others.

Fit-out benchmark & assessment tool

Waste
Issue

D60
ID

9
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Designing out waste (continued)

The Designing out Waste Tool for Buildings (DoWT-B) is a freely accessible resource.

The joint government and industry Green Construction Board looks widely at green property and green construction issues, and incorporates priority activities of the Strategy for Sustainable Construction. The Board's actions and work are accomplished through a number of working groups, one of which is the Greening the Industry Group. It in turn has several workstreams including a Waste Subgroup which analyses waste data sources to produce an annual figure for the amount of construction, demolition and excavation waste sent to landfill. It has also produced a waste reduction action plan applicable to the wider construction industry. Refer to its online resources for the latest available information.

Fit-out benchmark & assessment tool

Waste

Issue

D60

ID

9

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce workstations and tables sent to landfill

Criteria

100% of the workstations and tables are:

- reused;
- recycled; or
- diverted from landfill.

Note: A product can be considered to have been reused where it is salvaged and used for its original intended purpose or where the majority of component parts of the product are remanufactured into new products without significant reprocessing.

Scoping

This measure applies if the removal of existing workstations and tables forms part of the fit-out contract.

Assessment

At design stage: check the waste management documents (as specified in **D09 SWMP**) cover the disposal of these products by reusing, recycling or otherwise diverting from landfill.

At handover stage: check waste records to confirm that these products were reused, recycled or otherwise diverted from landfill.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce the number of workstations and tables sent to landfill, which is highly wasteful in terms of energy and resource use.

Guidance

Reuse can be broken down into three key areas:

- direct reuse – within the fit-out project or elsewhere within the organisation;
- donation – to charities, schools, etc.; or
- sale – to smaller companies and start up organisations, etc.

Community Recycling Network – a membership organisation supporting not-for-profit and community groups involved in recycling, reuse or waste minimisation projects.

There are a number of organisations that specialise in the redeployment of office furniture. Two of the most well known are Green Standards Trust and Green-Works; their websites provide useful information and guidance on this subject.

Fit-out benchmark & assessment tool

Waste
Issue

D15
ID

12
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce workstations and tables sent to landfill (continued)

WRAP – the waste and resource action programme.

Wood waste recycling in furniture manufacturing – a good practice guide, BFM and WRAP.

Wastematch is a social enterprise helping organisations find cost effective ethical and environmental disposal routes for surplus assets.

Fit-out benchmark & assessment tool

Waste
Issue

D15
ID

12
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce chairs sent to landfill

Criteria

90% of all chairs are:

- reused;
- recycled; or
- diverted from landfill.

Note: A product can be considered to have been reused where it is salvaged and used for its original intended purpose or where the majority of component parts of the product are remanufactured into new products without significant reprocessing.

Scoping

This measure applies if the removal of existing chairs forms part of the fit-out contract and includes all types of chairs such as: desk chairs, task chairs, dining chairs, meeting chairs, comfy chairs and sofas.

Assessment

At design stage: check the waste management documents (as specified in **D09 SWMP**) cover the disposal of these products by reusing, recycling or otherwise diverting from landfill.

At handover stage: check waste records to confirm that these products were reused, recycled or otherwise diverted from landfill.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce the number of chairs sent to landfill, which is highly wasteful in terms of energy and resource use.

Guidance

Reuse can be broken down into three key areas:

- direct reuse – within the fit-out project or elsewhere within the organisation;
- donation – to charities, appropriate educational facilities, etc.; or
- sale – to smaller companies and start up organisations, etc.

Community Recycling Network – a membership organisation supporting not-for-profit and community groups involved in recycling, reuse or waste minimisation projects.

There are a number of organisations that specialise in the redeployment of office furniture. Two of the most well known are Green Standards Trust and Green-Works; their websites provide useful information and guidance on this subject.

Fit-out benchmark & assessment tool

Waste

Issue

D16

ID

13

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce chairs sent to landfill (continued)

WRAP – the waste and resource action programme.

Wood waste recycling in furniture manufacturing – a good practice guide, BFM and WRAP.

Wastematch is a social enterprise helping organisations find cost effective ethical and environmental disposal routes for surplus assets.

Fit-out benchmark & assessment tool

Waste
Issue

D16
ID

13
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce other loose furniture sent to landfill

Criteria

100% of any other loose furniture items (i.e. those items not covered by measures D15, D16, D17) are:

- reused;
- recycled; or
- diverted from landfill.

Note: A product can be considered to have been reused where it is salvaged and used for its original intended purpose or where the majority of component parts of the product are remanufactured into new products without significant reprocessing.

Scoping

This measure applies if the removal of other loose furniture items (not covered by measures D15, D16, D17) forms part of the fit-out contract.

Assessment

At design stage: check the waste management documents (as specified in **D09 SWMP**) cover the disposal of these products by reusing, recycling or otherwise diverting from landfill.

At handover stage: check waste records to confirm that these products were reused, recycled or otherwise diverted from landfill.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce the number of loose furniture items sent to landfill, which is highly wasteful in terms of energy and resource use.

Guidance

Reuse can be broken down into three key areas:

- direct reuse – within the fit-out project or elsewhere within the organisation;
- donation – to charities, appropriate educational facilities, etc.; or
- sale – to smaller companies and start up organisations, etc.

Community Recycling Network – a membership organisation supporting not-for-profit and community groups involved in recycling, reuse or waste minimisation projects.

There are a number of organisations that specialise in the redeployment of office furniture. Two of the most well known are Green Standards Trust and Green-Works; their websites provide useful information and guidance on this subject.

Fit-out benchmark & assessment tool

Waste
Issue

D18
ID

22
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Reduce other loose furniture sent to landfill (continued)

WRAP – the waste and resource action programme.

Wood waste recycling in furniture manufacturing – a good practice guide, BFM and WRAP.

Wastematch is a social enterprise helping organisations find cost effective ethical and environmental disposal routes for surplus assets.

Fit-out benchmark & assessment tool

Waste

Issue

D18

ID

22

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce storage units sent to landfill

Criteria

100% of the storage units are:

- reused;
- recycled; or
- diverted from landfill.

Note: A product can be considered to have been reused where it is salvaged and used for its original intended purpose or where the majority of component parts of the product are remanufactured into new products without significant reprocessing.

Scoping

This measure applies if the removal of existing storage units forms part of the fit-out contract.

Assessment

At design stage: check the waste management documents (as specified in **D09 SWMP**) cover the disposal of these products by reusing, recycling or otherwise diverting from landfill.

At handover stage: check waste records to confirm that these products were reused, recycled or otherwise diverted from landfill.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce the number of storage units sent to landfill, which is highly wasteful in terms of energy and resource use.

Guidance

Reuse can be broken down into three key areas:

- direct reuse – within the fit-out project or elsewhere within the organisation;
- donation – to charities, appropriate educational facilities, etc.; or
- sale – to smaller companies and start up organisations, etc.

Community Recycling Network – a membership organisation supporting not-for-profit and community groups involved in recycling, reuse or waste minimisation projects.

There are a number of organisations that specialise in the redeployment of office furniture. Two of the most well known are Green Standards Trust and Green-Works; their websites provide useful information and guidance on this subject.

Fit-out benchmark & assessment tool

Waste
Issue

D17
ID

23
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce storage units sent to landfill (continued)

WRAP – the waste and resource action programme.

Wood waste recycling in furniture manufacturing – a good practice guide, BFM and WRAP.

Wastematch is a social enterprise helping organisations find cost effective ethical and environmental disposal routes for surplus assets.

Fit-out benchmark & assessment tool

Waste
Issue

D17
ID

23
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce floor finishes sent to landfill

Criteria

100% of all the waste carpet and hard flooring (e.g. ceramic tiles, terrazzo, natural stone and laminate) is:

- reused;
- recycled; or
- diverted from landfill.

At least 50% of all the waste resilient flooring (vinyl, linoleum, rubber, synthetic thermoplastic) is:

- reused;
- recycled; or
- diverted from landfill.

Note: A product can be considered to have been reused where it is salvaged and used for its original intended purpose or where the majority of component parts of the product are remanufactured into new products without significant reprocessing.

Scoping

This measure applies if the removal of any existing floor finishes forms part of the fit-out contract or if new flooring is being installed.

Assessment

At design stage: check the waste management documents (as specified in **D09 SWMP**) cover the disposal of all floor finishes (carpets, hard and resilient flooring) by reusing, recycling or otherwise diverting from landfill.

At handover stage: check waste records to confirm that the floor finishes were reused, recycled or otherwise diverted from landfill.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The Flooring Resource Efficiency Plan confirms that 'Currently almost 600,000 tonnes of flooring is disposed of each year, of which less than 2% is recycled. A small quantity is incinerated but the vast majority, over 90%, goes to landfill. Most is carpet and the manufacturer's disposal costs are estimated to be in excess of £1 million per year. Total cost to the industry supply chain (including local authorities) is believed to be in excess of £45 million. Reducing this waste will be of considerable economic benefit to the industry, as well as reducing the impact on the environment.'

Fit-out benchmark & assessment tool

Waste
Issue

D14
ID

26
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Reduce floor finishes sent to landfill (continued)

Guidance

The sustainable options for removing floor finishes are:

- reuse, either on- or off-site;
- recycle;
- return (lease); or
- energy recovery.

The *Flooring Resource Efficiency Plan* identifies the actions needed to reduce flooring waste and to improve resource efficiency. It confirms the main routes for disposal and details established organisations set up to reuse/ recycle flooring products.

There are now established national networks available to main contractors to return carpet tiles and vinyl floor finishes back in to production:

- Carpet Recycling UK lists waste transfer stations that are able to return redundant carpet tiles back in to production.
- Recofloor offers the same solution for vinyl flooring.

Fit-out benchmark & assessment tool

Waste
Issue

D14
ID

16
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce timber sent to landfill

Criteria

At least 100% of waste timber is:

- reused;
- recycled; or
- diverted from landfill.

Note: A product can be considered to have been reused where it is salvaged and used for its original intended purpose or where the majority of component parts of the product are remanufactured into new products without significant reprocessing.

Scoping

This measure applies if the removal of existing timber and/or new onsite joinery works form part of the fit-out contract.

Assessment

At design stage: check the waste management documents (as specified in **D09 SWMP**) cover the disposal of timber by reusing, recycling or otherwise diverting from landfill.

At handover stage: check waste records to confirm that the timber was reused, recycled or otherwise diverted from landfill.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

Every year approximately 8–10 million tonnes of wood is produced for disposal in the UK. The aim is to reduce the amount of wood waste sent to landfill, which is highly wasteful in terms of energy and resource use.

Guidance

RecycleWood – provides a postcode search engine for wood recycling services.

Wood Recyclers' Association – provides a list of member companies.

A code of practice is currently being developed for wood recyclers in conjunction with WRAP.

WRAP – the waste and resource action programme.

Wood waste recycling in furniture manufacturing – a good practice guide, BFM and Wrap.

Fit-out benchmark & assessment tool

Waste
Issue

D11
ID

32
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce ceilings sent to landfill

Criteria

At least 100% of the waste ceilings are:

- reused;
- recycled; or
- diverted from landfill.

Note: A product can be considered to have been reused where it is salvaged and used for its original intended purpose or where the majority of component parts of the product are remanufactured into new products without significant reprocessing.

Scoping

This measure applies if the removal of existing ceilings forms part of the fit-out contract or if new ceilings are being installed.

Assessment

At design stage: check the waste management documents (as specified in **D09 SWMP**) cover the disposal of ceilings by reusing, recycling or otherwise diverting from landfill.

At handover stage: check waste records to confirm that the ceilings were reused, recycled or otherwise diverted from landfill.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce the amount of ceiling waste sent to landfill, which is highly wasteful in terms of energy and resource use.

Guidance

It is recognised that there are issues with returning older mineral products back into the mix to make new tiles. Bio-soluble wool was introduced in 2000, but mineral wool produced before this cannot be recycled at the present time. However, this measure covers all ceilings that are stripped out. If the project cannot achieve this measure because non-recyclable mineral wool tiles are being stripped out, then the project should look to achieve the other waste measures.

Community Recycling Network – a membership organisation supporting not-for-profit and community groups involved in recycling, reuse or waste minimisation projects.

WRAP – the waste and resource action programme.

Mineral Wool Ceiling Tiles – A Resource Efficiency Action Plan published by the AIS identifies the actions needed to reduce ceiling waste and to improve resource efficiency. It confirms the main routes for disposal and details established organisations set up to reuse/recycle ceiling products.

Fit-out benchmark & assessment tool

Waste
Issue

D13
ID

33
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce partitions sent to landfill

Criteria

At least 80% of the waste partitions are:

- reused;
- recycled; or
- diverted from landfill.

Note: A product can be considered to have been reused where it is salvaged and used for its original intended purpose or where the majority of component parts of the product are remanufactured into new products without significant reprocessing.

Scoping

This measure applies if the removal of existing partitions forms part of the fit-out contract or if partitions are to be installed.

Assessment

At design stage: check the waste management documents (as specified in **D09 SWMP**) cover the disposal of partitions by reusing, recycling or otherwise diverting from landfill.

At handover stage: check waste records to confirm that the partitions were reused, recycled or otherwise diverted from landfill.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce the amount of partition waste sent to landfill, which is highly wasteful in terms of energy and resource use.

Guidance

Community Recycling Network – a membership organisation supporting not-for-profit and community groups involved in recycling, reuse or waste minimisation projects.

WRAP – the waste and resource action programme.

Fit-out benchmark & assessment tool

Waste
Issue

D12
ID

36
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce doors sent to landfill

Criteria

At least 80% of doors are:

- reused;
- recycled; or
- diverted from landfill.

Note: a product can be considered to have been reused where it is salvaged and used for its original intended purpose or where the majority of component parts of the product are remanufactured into new products without significant reprocessing.

Scoping

This measure applies if the removal of doors forms part of the fit-out contract or if new doors are being installed.

Assessment

At design stage: check the waste management documents (as specified in D09) cover the disposal of doors by reusing, recycling or otherwise diverting from landfill.

At handover stage: check waste records to confirm that doors were reused, recycled or otherwise diverted from landfill.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce the number of doors sent to landfill, which is highly wasteful in terms of energy and resource use.

Guidance

Redeployment can be broken down into three key areas:

- reuse – within the fit-out project or elsewhere within the organisation;
- donation – to charities, schools, etc.; or
- sale – to smaller companies and start up organisations, etc.

Community Recycling Network – a membership organisation supporting not-for-profit and community groups involved in recycling, reuse or waste minimisation projects.

There are a number of organisations that specialise in the redeployment of office furniture. Two of the most well known are Green Standards Trust and Green-Works; their websites provide useful information and guidance on this subject.

WRAP – the waste and resource action programme.

Fit-out benchmark & assessment tool

Waste
Issue

D48
ID

37
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce masonry sent to landfill

Criteria

At least 100% of the masonry is:

- reused; or
- recycled.

Note: A product can be considered to have been reused where it is salvaged and used for its original intended purpose or where the majority of component parts of the product are remanufactured into new products without significant reprocessing.

Scoping

This measure applies if the removal of existing masonry forms part of the fit-out contract or if masonry elements are specified for the fit-out.

Assessment

At design stage: check the waste management documents (as specified in **D09 SWMP**) cover the disposal of masonry by reusing or recycling.

At handover stage: check waste records to confirm that the masonry was reused or recycled.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce the amount of demolition and construction waste sent to landfill.

Guidance

Fit-out waste guide, British Land, 2008.

WRAP – the waste and resource action programme.

Fit-out benchmark & assessment tool

Waste

Issue

D10

ID

38

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce construction and demolition (C&D) waste sent to landfill

Criteria

At least 90% of all construction and demolition (C&D) waste is:

- reused;
- recycled; or
- diverted from landfill.

Scoping

This measure applies to all fit-outs.

Assessment

At design stage: check waste management documents (as specified in **D09 SWMP**) cover the disposal of all waste products.

At handover stage: check waste records to confirm that 90% of waste was reused, recycled or otherwise diverted from landfill.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

This measure covers all construction and demolition (C&D) waste, not just the specified products in other good practice measures. The purpose of this measure is to provide extra incentive to any contractor who manages to divert more than 90% of all construction and demolition waste from landfill.

Guidance

CIRIA – provides a database of construction-related recycling sites.

Freecycle – a website promoting the reuse of materials.

The National Materials Exchange – a free online service facilitating the exchange of materials between construction sites.

WRAP – the waste and resource action programme.

Fit-out benchmark & assessment tool

Waste

Issue

P03

ID

39

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Increase recycling of construction and demolition (C&D) waste

Criteria

At least 80% of all construction and demolition (C&D) waste is:

- reused; or
- recycled.

Note: disposal through recovery is not acceptable for the award of this measure.

Scoping

This measure applies to all fit-outs.

Assessment

At design stage: check waste management documents (as specified in **D09 SWMP**) cover the disposal of all waste products.

At handover stage: check waste records to confirm 80% of waste was reused or recycled.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

This measure covers all construction and demolition (C&D) waste, not just the specified products in other good practice measures. The purpose of this measure is to provide extra incentive to any contractor who manages to recycle or reuse more than 80% of all construction and demolition waste.

This measure has the same scope as P03 but rewards the contractor only for reusing and recycling waste. This measure does not reward the contractor for incinerating waste products to recover energy. This is because, although a better option than sending these products to landfill, energy recovery is not considered best practice for waste streams arising from the fit-out process.

Guidance

CIRIA – provides a database of construction-related recycling sites.

Freecycle – a website promoting the reuse of materials.

The National Materials Exchange – a free online service facilitating the exchange of materials between construction sites.

WRAP – the waste and resource action programme.

Fit-out benchmark & assessment tool

Waste

Issue

P04

ID

58

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce total waste in use

Criteria

Annual total waste generated by the commercial space is less than the figures outlined below:

Type of building	Basis	Mass of waste per year (kg)
Office	Per staff member	80

Type of building	Basis	Volume of waste per year (m^3)
Restaurant	Per cover (dining space)	3.9
Fast food outlet	Per cover (dining space)	3.9
Fast food outlet	Per sale	0.26
Shop unit	Per m^2 sales area	0.39
Departmental stores	Per m^2 sales area	0.52
Small supermarket	Per m^2 sales area	0.52
Large supermarket	Per m^2 sales area	0.78

Scoping

This measure applies to all occupancy stage assessments.

Assessment

This measure can only be assessed after a minimum of one year's occupation as the waste generated has to be measured over a full calendar year (365 days). This is to take account of seasonal variations and occupant behaviour, such as holidays.

At occupancy stage: review the occupier's records of waste disposal for the last year to determine the total mass (kg) or volume (m^3) of the waste arising from the occupation of the office or retail unit (whether sent to landfill or otherwise diverted from landfill).

- For offices: divide this by the number of full time equivalent staff.
- For retail units: divide this by the appropriate figure detailed in the table above: either m2 of sales area, per-cover of dining space or per sale.

Fit-out benchmark & assessment tool

Waste
Issue

P05
ID

65
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce total waste in use (continued)

Rationale

The UK commercial industry produces approximately 40 million tonnes of waste per annum of which approximately 50% is disposed at landfill.

The standard tax per tonne of waste to landfill is increasing annually. This cost is passed onto the building end user, increasing the cost of disposing of waste.

The aim of this measure is to encourage occupants to reduce the overall amount of operational waste generated by the occupation of the fit-out space.

Guidance

The occupier should have an agreement with a firm that has a waste carriers licence. This firm should be able to provide records to the tenant showing how their waste has been disposed of, i.e. recycled, incinerated or sent to landfill. The figures provided should be of mass and volume of waste generated by the occupier. It is the responsibility of the occupier to select a waste carrier that is capable of providing the level of information required.

The targets set by this good practice measure have been taken from Section 4 'Waste Management Systems' of *Public Health Engineering, Guide* G, CIBSE, 2004.

See also good practice measure P06 Increase recycling of waste in use, which sets targets for how much total waste should be recycled or otherwise diverted from landfill.

WRAP – Waste and Resource Action Programme.

Waste Online – information resource on ways to reduce waste in the workplace.

Fit-out benchmark & assessment tool

Waste

Issue

P05

ID

65

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Recyclable waste storage space

Criteria

An operational waste management strategy has been developed. Space is provided for the storage of recyclable waste generated by the occupant's operations, based on the waste management strategy's recommendations. This space should be:

- adequately sized in line with the operational activities of the occupant and waste collection frequencies;
- accessible to both building occupants and waste collectors; and
- clearly marked as an area for recycled waste.

Scoping

This measure applies to all fit-outs.

Assessment

At design stage: review the waste management strategy document to check that the recyclable waste storage space has been sized in line with the occupant's business and waste collection frequency. Check drawings to ensure this area is marked and shown as being specifically for recyclable waste storage.

At handover stage: carry out a site visit to confirm that the area exists and has appropriate signage and sizing.

At occupancy stage: carry out a site visit to confirm that the area exists and is in regular use. It does not have to be the same space as long as the volumes set out at the design stage are being collected at the occupancy stage. Note that if the design doesn't provide enough space then the occupancy measures – **P05 Reduce total waste in use and P06 Increase recycling of waste in use** – will be difficult to achieve.

Rationale

Offices and shops generate large amounts of paper, cardboard and plastic material (often used for packaging) as part of their operation and much of this could be recycled. To make recycling schemes more economic, the material needs to be collected quickly and efficiently. This means provision of enough space with appropriate fire protection for storage and with access for collection. A dedicated storage space should be provided for waste, separated into spaces for different material types to increase recycling operational waste rates.

Fit-out benchmark & assessment tool

Waste
Issue

D08
ID

66
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Recyclable waste storage space (continued)

Guidance

The amount of storage space required for recyclable waste is dependent on the occupant's business. Therefore an occupational waste management strategy is required at the design stage to demonstrate that the space provision is consistent with the volume of operational waste streams generated.

For offices this space could be central or provided on the floor adjacent to workstations.

Restaurant and food stores will require a vessel to compost organic waste or adequate space for storing segregated food waste for collection by an external company to be taken for composting.

Non-food stores producing high volumes of packaging, cardboard, etc. will require a compactor or baler to compress waste.

Where small retail units form part of larger shopping centres or retail parks the shared central facilities that comply with the above requirements can satisfy this measure.

CIBSE Guide L – Sustainability. 2007. Provides the following guidance on 'preparing a waste management strategy':

- Predict waste arisings: examples of typical waste arisings are provided in BS 5906(64) and chapter 4 of CIBSE Guide G.
- Consider relevant legislation: see CIBSE Guide G and BS 5906.
- Consider the composition of waste: chapter 4 of CIBSE Guide G provides information on the breakdown of types of waste arisings.
- Predict potential reduction in waste arisings: through waste reduction schemes, reuse, recycling etc.
- Determine feasibility of recovery options such as composting and energy from waste.
- Calculate the storage, containment and equipment requirements for effective waste management. The following should be considered: volume and composition of waste, frequency of collection and degree of waste segregation required.

CIBSE Guide G – Public health engineering. Part 4 – Waste management systems (5 of 13). 2004.

Segregation of waste should be dependant on the major waste streams generated by the office or retail unit. CIBSE Guide G provides recommendations for solid waste disposal equipment:

- Shopping centres – use multiple located static compactor and containers plus wheeled 1 100-litre containers
- Supermarkets – use static compactor and containers
- Department stores – use static compactor and containers
- Restaurants – use catering compactors.

Envirowise.

WRAP – the waste and resource action programme.

Fit-out benchmark & assessment tool

Waste

Issue

D08

ID

66

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

SWMP

Criteria

A site waste management plan (SWMP) is prepared and at least 90% of waste (both construction and demolition) produced on site is diverted from landfill. The plan is in line with the voluntary code of practice Site Waste Management Plans: Guidance for Construction Contractors and Clients (see guidance below).

The format of the SWMP includes and allows for the projected and actual waste stream volumes that will be individually tracked by the Ska assessment.

The SWMP should have appended a schedule of all items to be removed from site that are covered by the WEEE (Waste Electrical and Electronic Equipment) regulations and those figures included in the overall targets for managing and reducing the creation site waste.

Scoping

This measure applies to all fit-outs.

Assessment

At design stage: review the SWMP and check that the plan demonstrates that at least 90% of waste will be diverted from landfill.

At handover stage: review the SWMP and records to confirm that more than 90% of waste was diverted from landfill.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

A SWMP is compulsory in England for all construction projects with a value greater than £300,000. This measure requires that a SWMP is provided for all projects regardless of value as it provides a framework for projects to target and monitor site waste reduction.

In 2007 the government produced the Waste Strategy for England that accredited the construction industry as a significant contributor of waste to landfill. The government set the following targets:

- 50% reduction in waste to landfill by 2012; and
- zero waste to landfill by 2020.

Fit-out benchmark & assessment tool

Waste
Issue

D09
ID

67
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SWMP (continued)

Guidance

Site waste covers both demolition waste and construction waste. The strip-out of the existing materials is classified as 'demolition' waste. Where a strip-out forms part of the project, the SWMP should include a section outlining the plan for demolition waste as well as construction waste in line with the criteria.

Site Waste Management Plans: Guidance for Construction Contractors and Clients, DTI, 2004.

Additional resources to support the development of SWMPs are available from Constructing Excellence.

The Site Waste Management Plans Regulations 2008.

Templates for creating a SWMP are available to download from WRAP.

WRAP's Design out Waste tool for buildings and NetWaste tool can be used to populate the WRAP SWMP template and provides advice on initiatives for reducing waste in design and construction. Both tools are accessible online to registered users; registration is free.

SWMP Lite is a new version aimed at facilitating interior fit-out and refurbishment projects launch by WRAP in March 2013. Supportive training information on its use can be obtained from the WRAP site.

For guidance on what materials and equipment is covered by the WEEE legislation, please refer to the Environment Agency document *EEE Scope Guidance* version 3.0 (March 2010).

Fit-out benchmark & assessment tool

Waste
Issue

D09
ID

67
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce mechanical and electrical services materials sent to landfill

Criteria

At least 80% of mechanical and electrical (M&E) services materials are:

- reused;
- recycled; or
- diverted from landfill.

Note: A product can be considered to have been reused where it is salvaged and used for its original intended purpose or where the majority of component parts of the product are remanufactured into new products without significant reprocessing.

This measure does not track those items that are covered by the Waste Electrical and Electronic Equipment (WEEE) regulations.

Scoping

This measure applies if the removal of mechanical and electrical services forms part of the fit-out contract or if new mechanical and electrical services are being installed.

This measure does not track those items that are required to be responsibly managed as set out by the WEEE legislation.

Assessment

At design stage: check the waste management documents (as specified in **D09 SWMP**) cover the disposal of all M&E services materials by reusing, recycling or otherwise diverting from landfill.

At handover stage: check waste records to confirm that M&E services materials were reused, recycled or otherwise diverted from landfill.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to reduce the volume of materials sent to landfill, which is highly wasteful in terms of energy and resource use.

Fit-out benchmark & assessment tool

Waste
Issue

D68
ID

72
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Reduce mechanical and electrical services materials sent to landfill (continued)

Guidance

The type of materials covered by this good practice measure include those noted below, but this list should not be considered exhaustive:

- duct work;
- supply and refrigeration pipework (copper, plastic);
- waste pipework & traps (plastics, cast iron, steel);
- flexihoses (water supply) and flexidrops (sprinkler system);
- valves & manifolds that do not require an electrical supply to operate;
- sprinkler heads;
- taps;
- power cables;
- armoured cables;
- data cables;
- conduits (metal, plastic);
- ceiling grills;
- intake and extract louvers;
- acoustic intake louvers;
- acoustic dampers (fire dampers require an electrical supply to work so would be covered by the WEEE regulations);
- cable trays and hangers;
- modular plant supports (Big Foot or similar proprietary support systems); and
- acoustic enclosures for external plant.

For guidance on what materials and equipment is covered by the WEEE legislation, please refer to the Environment Agency document *EEE Scope Guidance*.

Fit-out benchmark & assessment tool

Waste
Issue

D68
ID

72
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Increase recycling of waste in use

Criteria

At least 80% of all waste arising from occupation is:

- reused;
- recycled; or
- composted or used for anaerobic digestion (applies to food waste only).

Note: disposal through incineration is not acceptable for the award of this measure.

Scoping

This measure applies to all occupancy stage assessments.

Assessment

This measure can only be assessed after a minimum of one year's occupation as the waste generated has to be measured over a full calendar year (365 days). This is to take account of seasonal variations and occupant behaviour, such as holidays.

At occupancy stage: review the occupier's records of waste disposal for the last year to determine whether more than 80% by mass (kg) of the waste arising from the occupation of the office or retail space was either reused, recycled or composted.

Rationale

The UK commercial industry produces approximately 40 million tonnes of waste per annum of which approximately 50% is disposed at landfill.

The standard tax per tonne of waste to landfill is increasing annually. This cost is passed onto the building end user, increasing the cost of disposing of waste.

This measure has the same scope as P05 but rewards the occupier only for reusing and recycling waste. This measure does not reward the occupier for incinerating waste products to recover energy. Studies by Waste and Resource Action Programme (WRAP) indicate that 60–80% of office waste is paper, and so recycling rather than incineration is the environmentally-preferable option. Recycling is also the preferred option for other office waste streams.

Fit-out benchmark & assessment tool

Waste
Issue

P06
ID

77
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Increase recycling of waste in use (continued)

Guidance

The occupier should have an agreement with a firm that has a waste carriers licence. This firm should be able to provide records to the tenant showing how their waste has been disposed of, i.e. recycled, incinerated or sent to landfill. The figures provided should be of mass and volume of waste generated by the occupier. It is up to the occupier to select a waste carrier that is capable of providing the level of information required.

WRAP – Waste and Resource Action Programme.

Waste Online – information resource on ways to reduce waste in the workplace.

Fit-out benchmark & assessment tool

Waste

Issue

P06

ID

77

Rank

SKA Offices 1.2 2013

Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Reduce water in use

Criteria

Water use is less than 0.55m^3/m^2/year or less than 4m^3/person/year.

Scoping

This measure applies to occupancy stage assessments if washrooms (in tenant or landlord areas) have been installed or changed. If good practice measures E12–E18 were in scope at the handover stage assessment, this measure is in scope.

Assessment

This measure can only be assessed after a minimum of one year's occupation as the waste generated has to be measured over a full calendar year (365 days). This is to take account of seasonal variations and occupant behaviour, such as holidays.

At handover stage: record water meter readings.

At occupancy stage: take meter readings and use the meter readings taken at the handover stage to calculate the annual water consumption in m^3 (the difference between the readings). Calculate the water use based either on net lettable floor area or number of full time equivalent employees.

The calculation is as follows:

$$\text{Annual water use by floor area } (m^3/m^2/\text{year}) = \frac{\text{Annual water consumption } (m^3)}{\text{Floor area } (m^2)}$$

$$\text{Annual water use by employee } (m^3/\text{person/year}) = \frac{\text{Annual water consumption } (m^3)}{\text{Number of full time equivalent employees}}$$

Rationale

The aim is to encourage the occupant to reduce water consumption. The targets set here are based on good practice benchmarks. If the fit-out process has introduced water-efficiency measures, then the impact of these measures should be reflected in reduced annual water consumption.

Fit-out benchmark & assessment tool

Water
Issue

P08
ID

3
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Reduce water in use (continued)

Guidance

Ideally the water consumption should be measured during the first year of occupation. However, the assessment period can start at any time within the first year of occupation (therefore finishing within the first two years of occupation).

If this measure is in scope but a water meter for the space being assessed has not been fitted, this measure will remain in scope even though it will not be possible to achieve it. This is because the client has chosen to implement resource-saving measures but has no way to measure the benefit of them. As the assessment can be completed at any time during the first two years of occupation, the client has time to install the meters required.

Performance targets can be found in *W11 – Key Performance Indicators for water use in offices,* CIRIA.

A Blueprint to Safeguard Europe' s Water Resources – EU plan for water efficiency.

Fit-out benchmark & assessment tool

Water
Issue

P08
ID

3
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

New low flush WCs

Criteria

WCs have an effective flush volume of 4.5 litres or less and are either on the Water Technology List (WTL) or have an EU Water Efficiency label.

Scoping

This measure applies if WCs are being installed.

Assessment

At design stage: check written specifications/contracts state this equipment must be sourced from the WTL or have an EU Water Efficiency label. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: check invoices and obtain the name of the equipment manufacturer and the model number; check the equipment has a flush volume of 4.5L or less and is either on the WTL or has an EU Water Efficiency label.

At occupancy stage: if WCs have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and WCs have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce water use within interior spaces.

Guidance

The Inland Revenue uses a Water Technology List of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of water efficient systems.

Products should ideally be on the Water Technology List as Defra regularly tests WTL listed-products to check they meet the thresholds required by the Enhanced Capital Allowances eligibility criteria.

The EU Water Efficiency Label is supported by Defra and Waterwise and provides another indication of water efficiency.

These both provide more reliable evidence than just a manufacturer's declaration, which places the onus on the assessor to ensure the criteria are met.

A Blueprint to Safeguard Europe's Water Resources EU plan to water efficiency.

Fit-out benchmark & assessment tool

Water
Issue

E12
ID

7
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Existing low flush WCs

Criteria

Existing WCs are retrofitted with flushing devices that provide a 20% reduction in flush volume (see guidance) and meet the Water Technology List (WTL) criteria either by (in order of preference):

- being listed on the WTL;
- having an EU Water Efficiency Label that indicates performance that meets/exceeds the WTL criteria; or
- meeting/exceeding the WTL criteria based on specifications provided by the manufacturer.

Scoping

This measure applies if there are existing washroom facilities containing WCs and the reduction of flush volumes is planned.

Assessment

At design stage: check written specifications/contracts state this equipment must meet the WTL criteria. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: check invoices and obtain the name of the equipment manufacturer and the model number; check devices reduce flush volume by 20% and are either listed on the WTL, have an EU Water Efficiency Label, or otherwise meets the WTL criteria.

At occupancy stage: if flushing devices have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and flushing devices have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce water use in interior spaces. Retrofit WC flushing devices are fitted to existing cisterns or WC suites to enable a reduction in the volume of water per flush.

Guidance

The Inland Revenue uses a Water Technology List of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of water efficient systems.

Products should ideally be on the Water Technology List as Defra regularly tests WTL listed-products to check they meet the thresholds required by the Enhanced Capital Allowances eligibility criteria.

Fit-out benchmark & assessment tool

Water
Issue

E23
ID

8
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Existing low flush WCs (continued)

The EU Water Efficiency Label is supported by Defra and Waterwise and provides another indication of water efficiency.

These both provide more reliable evidence that the product meets the requirements than just a manufacturer's declaration, which places the onus on the assessor to ensure the criteria are met.

A Blueprint to Safeguard Europe's Water Resources EU plan to water efficiency.

Fit-out benchmark & assessment tool

Water
Issue

E23
ID

8
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Efficient taps

Criteria

Flow rate on taps is limited to 6 litres/minute up to a pressure of 5 bar (+/– 0.2 bar) and the tap fitting or flow controller is either on the Water Technology List (WTL) or has an EU Water Efficiency Label.

The taps should be one of the following:

- automatic shut-off taps;
- electronic taps;
- low flow screw-down/lever taps; or
- spray taps.

Where auto-shut off or electronic taps are specified these should be restricted to no more than 20 seconds flow.

Scoping

This measure applies if taps are being installed or replaced.

The criteria apply to washroom areas and further ancillary rooms where taps are installed for hand washing. The criteria do not apply to taps installed in commercial kitchens, tea points, cleaner's workrooms or similarly specialised spaces.

Assessment

At design stage: check written specifications/contracts state the required efficiency and that the equipment must be sourced from the WTL or have an EU Water Efficiency Label. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: check invoices and obtain the name of the equipment manufacturer and the model number; check the model is listed on the WTL or has an EU Water Efficiency Label.

At occupancy stage: if taps have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and taps have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce water usage within interior spaces.

Fit-out benchmark & assessment tool

Water
Issue

E14
ID

20
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Efficient taps (continued)

Guidance

The Inland Revenue uses a Water Technology List of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of water efficient systems.

Products should ideally be on the Water Technology List as Defra regularly tests WTL listed-products to check they meet the thresholds required by the Enhanced Capital Allowances eligibility criteria.

The EU Water Efficiency Label is supported by Defra and Waterwise and provides another indication of water efficiency.

These both provide more reliable evidence than just a manufacturer's declaration, which places the onus on the assessor to ensure the criteria are met.

A Blueprint to Safeguard Europe's Water Resources EU plan to water efficiency.

Fit-out benchmark & assessment tool

Water
Issue

E14
ID

20
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Showers

Criteria

Flow rate to showers is limited to 9 litres/minute up to a pressure of 5 bar (+/– 0.2 bar) and the flow controller fittings meet the Water Technology List (WTL) criteria either by (in order of preference):

- being listed on the WTL;
- having an EU Water Efficiency Label that indicates performance that meets/exceeds the WTL criteria; or
- meeting/exceeding the WTL criteria based on specifications provided by the manufacturer.

Note: This measure can be achieved by using a shower that meets the requirements or installing a flow controller to control the flow through the shower.

Scoping

This measure applies if showers are being installed or replaced.

Assessment

At design stage: check written specifications/contracts state the requirements from the criteria and that this equipment meets the WTL criteria. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: check invoices and obtain the name of the equipment manufacturer and the model number; check the model is listed on the WTL, has an EU Water Efficiency Label, or otherwise meets the WTL criteria.

At occupancy stage: if showers have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and showers have not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce water use within interior spaces.

Fit-out benchmark & assessment tool

Water
Issue

E16
ID

34
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Showers (continued)

Guidance

The Inland Revenue uses a Water Technology List of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of water efficient systems.

Products should ideally be on the Water Technology List as Defra regularly tests WTL listed-products to check they meet the thresholds required by the Enhanced Capital Allowances eligibility criteria.

The EU Water Efficiency Label is supported by Defra and Waterwise and provides another indication of water efficiency.

These both provide more reliable evidence than just a manufacturer's declaration, which places the onus on the assessor to ensure the criteria are met.

A Blueprint to Safeguard Europe's Water Resources EU plan to water efficiency.

Fit-out benchmark & assessment tool

Water
Issue

E16
ID

34
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

SKArating®

Water meter

Criteria

The meter is capable of transmitting information on water use to a central data logger for water management purposes. The meter meets the Water Technology List (WTL) criteria either by (in order of preference):

- being listed on the WTL;
- having an EU Water Efficiency Label that indicates performance that meets/exceeds the WTL criteria; or
- meeting/exceeding the WTL criteria based on specifications provided by the manufacturer.

Scoping

This measure applies if the water supply system is being installed or modified or if a water meter is being connected to the existing system.

Assessment

At design stage: check written specifications/contracts state this equipment meets the WTL criteria and that it is a pulsed water meter. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: check invoices and obtain the name of the equipment manufacturer and the model number; check the model is listed on the WTL, has an EU Water Efficiency Label, or otherwise meets the WTL criteria, and the meter is capable of transmitting information on water use to a central data logger for water management purposes.

At occupancy stage: if the water meter has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the water meter has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce water use within the office by providing feedback to occupiers on water use. The measure is in scope if water supply systems are being modified as this presents an opportunity to install a water meter.

Fit-out benchmark & assessment tool

Water	Issue
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If you would like to comment on this measure please email **support@skarating.org**

Water meter (continued)

Guidance

The Inland Revenue uses a Water Technology List of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of water efficient systems.

Products should ideally be on the Water Technology List as Defra regularly tests WTL listed-products to check they meet the thresholds required by the Enhanced Capital Allowances eligibility criteria.

The EU Water Efficiency Label is supported by Defra and Waterwise and provides another indication of water efficiency.

These both provide more reliable evidence than just a manufacturer's declaration, which places the onus on the assessor to ensure the criteria are met.

A Blueprint to Safeguard Europe's Water Resources EU plan to water efficiency.

Fit-out benchmark & assessment tool

Water
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Water management software

Criteria

Dedicated 'water use' management software is used for analysing and reporting on water use data and that software is either on the Water Technology List or meets/exceeds the WTL criteria; or the Building Management System (BMS) has the capacity to monitor and report water consumption.

Scoping

This measure applies if the water supply system is being installed or modified or if water management software is added to the existing system.

Assessment

At design stage: check written specifications/contracts state this equipment must be sourced from the WTL or meet/exceed the WTL criteria. If the model and manufacturer have already been specified then carry out the handover stage assessment. If water consumption monitoring is being undertaken by the BMS, review the BMS specification to ensure the system has the capacity to monitor and report water consumption.

At handover stage: check the invoices and obtain the name of the equipment manufacturer and the model number; check the model is on the WTL or meets/exceeds the WTL criteria. If the BMS is to be utlised, review the as-built description of controls for the BMS or witness the BMS undertaking the required functions.

At occupancy stage: if water management software has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the software has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the potable water usage within interior spaces by providing feedback to occupiers on water use. The measure is in scope if water supply systems are being modified as this presents an opportunity to install a water meter and the associated analytical software.

Fit-out benchmark & assessment tool

Water
Issue

E18
ID

64
Rank

SKA Offices 1.2 2013
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If you would like to comment on this measure please email **support@skarating.org**

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Water management software (continued)

Guidance

Water meters and water management software can identify significant opportunities for water savings by monitoring water usage. This measure requires dedicated water use management software for analysing, reporting and communicating meaningful water management information to achieve water use savings.

The Inland Revenue uses a Water Technology List of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of water efficient systems.

Products should ideally be on the Water Technology List as Defra regularly tests WTL listed-products to check they meet the thresholds required by the Enhanced Capital Allowances eligibility criteria. This provides more reliable evidence that the product meets the requirements than just a manufacturer's declaration, which places the onus on the assessor to ensure the criteria are met.

A Blueprint to Safeguard Europe's Water Resources EU plan to water efficiency.

Fit-out benchmark & assessment tool

Water
Issue

E18
ID

64
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

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Sanitary supply shut-off

Criteria

A control system to isolate the water supply when the washrooms are unoccupied is specified and installed. This usually comprises a solenoid valve and occupancy sensor. The device must be on the Water Technology List (WTL) or meet/exceed the WTL criteria. The shut-off system only needs to be applied to the cold water supply to taps, WCs and urinals.

Scoping

This measure applies if the water supply system is being installed or modified or if a sanitary supply shut-off system is connected to the existing system.

Assessment

At design stage: check written specifications/contracts state this equipment must be sourced from the WTL or provably comply with the WTL criteria. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: check invoices and obtain the name of the equipment manufacturer and the model number; check the model is listed on the WTL or meets the WTL criteria.

At occupancy stage: if the sanitary supply shut-off system has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the system has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce the water loss if minor leaks occur in toilet areas. These minor leaks can result in large water losses but are not always immediately detected.

Control devices can be used to shut off flow at predetermined times or in particular situations, for example when water devices are not in use. They may be timed, condition-sensitive/programmed, or manually controlled at a central unit.

Fit-out benchmark & assessment tool

Water
Issue

E19
ID

74
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Sanitary supply shut-off (continued)

Guidance

The Inland Revenue uses a Water Technology List of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of water efficient systems. Sanitary supply shut-off systems can be found under 'flow controllers>control devices'.

Products should ideally be on the Water Technology List as Defra regularly tests WTL listed-products to check they meet the thresholds required by the Enhanced Capital Allowances eligibility criteria. This provides more reliable evidence that the product meets the requirements than just a manufacturer's declaration, which places the onus on the assessor to ensure the criteria are met.

A Blueprint to Safeguard Europe's Water Resources EU plan to water efficiency.

Fit-out benchmark & assessment tool

Water
Issue

E19
ID

74
Rank

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Leakage detection devices

Criteria

A system that has the ability to warn of water leaks is installed and is on the Water Technology List (WTL) or meets/exceeds the WTL criteria. Alternatively, the Building Management System (BMS) can be programmed to monitor water consumption and report consumption outside of appropriate limits and raise an alarm. The alarm threshold should be adjustable based on actual consumption monitoring.

Scoping

This measure applies if the water supply system is being installed or modified or if a detection system is being connected to the existing system.

Assessment

At design stage: check written specifications/contracts state this equipment must be sourced from the WTL or meet/exceed the WTL criteria. If the model and manufacturer have already been specified then carry out the handover stage assessment. If the BMS is being used, the BMS specification should be reviewed to ensure that it can monitor consumption and will raise an alarm when consumption is outside of pre-set thresholds.

At handover stage: check the invoices and obtain the name of the equipment manufacturer and the model number; check the model is on the WTL or meets/exceeds the WTL criteria. If the BMS is to be utlised, review the as-built description of controls for the BMS or witness the BMS undertaking the required functions.

At occupancy stage: if the detection system has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the detection system has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce water usage within the interior space by providing feedback to management on potential leaks in the water system. In turn, this will reduce the long-term leaks and subsequent damage to the structure. The measure is in scope if water supply systems are being modified as this presents an opportunity to install a leakage detection system.

Fit-out benchmark & assessment tool

Water
Issue

E20
ID

78
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

Leakage detection devices (continued)

Guidance

A leakage detection system is required to cover all mains water for the area of the fit-out.

The Inland Revenue uses a Water Technology List of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of water efficient systems.

Products should ideally be on the Water Technology List as Defra regularly tests WTL listed-products to check they meet the thresholds required by the Enhanced Capital Allowances eligibility criteria. This provides more reliable evidence that the product meets the requirements than just a manufacturer's declaration, which places the onus on the assessor to ensure the criteria are met.

A Blueprint to Safeguard Europe's Water Resources EU plan to water efficiency.

Fit-out benchmark & assessment tool

Water
Issue

E20
ID

78
Rank

SKA Offices 1.2 2013
Version

If you would like to comment on this measure please email **support@skarating.org**

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Leakage pressure reducing valve controller

Criteria

A device to analyse, record and control water pressure via the pressure reducing valve is installed and is either on the Water Technology List (WTL) or meets/exceeds the WTL criteria.

Scoping

This measure applies if the water supply system is being installed or modified or if a controller is being connected to the existing system.

Assessment

At design stage: check written specifications/contracts state this equipment must be sourced from the WTL or meet/exceed the WTL criteria. If the model and manufacturer have already been specified then carry out the handover stage assessment.

At handover stage: check invoices and obtain the name of the equipment manufacturer and the model number; check the model is on the WTL or meets/exceeds the WTL criteria.

At occupancy stage: if the controller has been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and the controller has not been changed or added, this measure will be achieved by default.

Rationale

The aim is to reduce water lost through leakage. Pressure reduction is a very effective means of achieving this, particularly at night when demand on the distribution system is lower, which causes water pressure to rise. The measure is in scope if water supply systems are being modified as this presents an opportunity to install a leakage pressure reducing valve controller.

Guidance

The Inland Revenue uses a Water Technology List of systems that are eligible for 100% capital allowances. It includes a list of manufacturers of water efficient systems. Leakage pressure reducing valve controllers can be found under 'leakage detection equipment>pressure reducing valve controllers'.

Products should ideally be on the Water Technology List as Defra regularly tests WTL listed-products to check they meet the thresholds required by the Enhanced Capital Allowances eligibility criteria. This provides more reliable evidence that the product meets the requirements than just a manufacturer's declaration, which places the onus on the assessor to ensure the criteria are met.

A Blueprint to Safeguard Europe's Water Resources EU plan to water efficiency.

Fit-out benchmark & assessment tool

Water
Issue

E21
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Reduce fit-out water use

Criteria

All water use on site is metered, records are kept and the site manager regularly reviews consumption figures. Meter readings are taken at a frequency appropriate to the project programme with at least five measurements taken. Water consumption minimisation is considered within the project or construction phase plan.

Scoping

This measure applies to all fit-outs.

Assessment

At design stage: obtain commitment from the design team that the fit-out contractor will meter and keep records of water use.

At handover stage: review the records of water use.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

The aim is to encourage the reduction of water use during the construction process by monitoring water consumption. Active monitoring helps raise awareness of water use among construction staff and therefore encourages them to make reductions.

Collection of this data will enable the contractor to set targets for water reduction in future fit-out projects.

Guidance

For a general overview of why water management on site is required refer to the document *Achieving sustainability on construction procurement*.

The construction industry key performance indicators are published each year by Constructing Excellence using performance data collected from across the UK construction sector by the Department for Business Innovation & Skills (BIS, formerly DTI/BERR). These include benchmarks for water use.

Fit-out benchmark & assessment tool

Water

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P07

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Thermal comfort assessment

Criteria

Thermal comfort modelling to CIBSE AM11 standard has been carried out at the design stage; the results of this modelling are used to select a service strategy that fits CIBSE Guide A (see guidance below).

Projects valued under £500K, if unable to undertake the above modelling, are required to:

- provide an overlay of the furniture and mechanical plans;
- provide written evidence in the form of meeting notes to demonstrate discussion has taken place with the client regarding occupant comfort; and
- provide a list of the solutions and actions to be taken following the client review.

The issues that must be discussed as a minimum are: locations of cold/hot spots (from HVAC equipment locations and downdrafts), radiant temperatures and overheating near windows and atria.

Scoping

This measure applies if HVAC systems are being installed or replaced, or modifications to the façade or windows will be undertaken.

Assessment

At design stage: review a modelling report to check occupant comfort has been considered in the selection of the most appropriate service strategy or review plans and notes of occupant comfort being discussed with the client.

At handover stage: check the applied service strategy follows the modelling or review report and that occupant comfort has been considered.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

Thermal comfort is an important criterion for occupant wellbeing and is typically the issue that produces greatest occupant dissatisfaction. Where occupants can control indoor air temperature and there is dissatisfaction, energy efficiency targets are missed due to strategies being overridden. The use of thermal modelling at the design stage of the fit-out should aim to select the HVAC strategies that provide optimal comfort and minimise overheating risks.

Fit-out benchmark & assessment tool

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Thermal comfort assessment (continued)

Changes to glazing can have dramatic effects on thermal comfort by increasing or decreasing solar gains, downdrafts, and radiant temperatures, therefore any modifications to glazing design should also be assessed for its impact on internal conditions.

Guidance

Building energy and environmental modelling, CIBSE Applications Manual AM11, CIBSE, 1998.

Environmental design (7th edition), Guide A, CIBSE, 2006.

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Lighting design

Criteria

Office spaces: lighting levels meet those outlined in the tables below. These levels can be achieved with a combination of overhead and task lighting.

Primary office spaces	Recommended maintained illuminance (lux)
Open plan office – mainly screen based work	300
Open plan office – mainly paper based work	500
Deep plan core area (more than 6m from window)	500
Cellular office – mainly screen based work	300
Cellular office – mainly paper based work	500
Graphics work stations	300
Dealing rooms	300-500
Executive offices	300-500
CAD work stations	500
Technical drawing areas/work stations (non-screen based)	750
Reception	300

Secondary office spaces	Recommended maintained illuminance (lux)	Recommended maintained illuminance for special situations (lux)
Meeting or break-out rooms	300 (for normal meetings)	500 (if more intense reading and writing is done)
Training rooms	300 (for mainly presentation and note-taking type training)	500 (if more intense reading and writing is done)
Conference and board rooms	300 (for normal meetings)	500 (if more intense reading and writing is done)
Reprographics rooms	300 (vertical on reprographic equipment)	300 (on collating, binding and dispatch tables)
Libraries/information centres	300 (general)	200 (vertically on bookcases); 500 (on reading desks and counters)
Archives/document stores	300 (general)	200 (vertically on fronts of shelving)
Break rooms/ tea points	200 (general)	300 (on serving and preparation areas)
Medical rooms	300 (general)	500 (on medical examination area)
Canteens/restaurants	200 (general)	300 (serveries); 500 (kitchens)
Rest rooms	200 (general)	–

Fit-out benchmark & assessment tool

Wellbeing
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If you would like to comment on this measure please email **support@skarating.org**

Lighting design (continued)

Retail spaces: lighting is designed to the standards set out in section 5 of BS EN 12464-1:2022 (see guidance below).

Scoping

Office spaces: this measure applies if general office lighting is being installed, replaced or modified. The criteria do not apply to circulation and/or service space.

Retail spaces: this measure applies if lighting (general and display) is being installed, replaced or modified. This applies to all front of house spaces. In back of house spaces, the criteria do not apply to circulation and/or service space.

Assessment

At design stage: review specification documents/clauses to confirm that lighting levels are designed to meet those specified above.

At handover stage: carry out a site visit, review as-built drawings or check invoices to ensure the specified lighting has been installed in the correct place.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage and the location and direction of fittings has not been changed.

Rationale

The visual comfort of staff and customers is affected by the levels of illumination on the working surfaces and in the working space.

Different lux levels are required for different areas, such as occupied workspaces and corridors. Task-based lighting should ensure maximum visual comfort, while avoiding over-illumination of spaces where high lighting levels are not required.

Guidance

Code for Lighting, Part 3 – Lighting Design, CIBSE, 2009.

Lighting Guide 7: Office Lighting, CIBSE, 2005.

BS EN 12464 Light and lighting – Lighting of work places. Part 1: indoor work places. 30 June 2011.

The SLL Lighting Handbook, The Society of Light and Lighting, 2009.

The SLL Code for Lighting, The Society of Light and Lighting, 2012.

Fit-out benchmark & assessment tool

Wellbeing

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Daylight glare control

Criteria

For office spaces all of the following criteria must be met:

- occupant-controlled window coverings (typically blinds or screens) are fitted to the external windows and atria that receive sunlight directly or indirectly;
- coverings are designed to provide optimum glare control and allow the best possible retention of views out with the coverings drawn closed; and
- fabric screens, where specified, have a visual light transmittance (VLT) of less than 10%.

For retail spaces one of the following criteria must be met for all visual display units (VDU) e.g. tills, ATMS:

- the VDU must be positioned so that light from the window does not fall on it or cause reflections;
- the VDU must be fitted with an anti-glare screen; or
- the workspace must be provided with a screen that

Scoping

Office spaces: this measure applies if window coverings are specified or installed.

Retail spaces: this measure applies if VDUs are installed within 6m of an external window or adjacent to roof lights or sunpipes.

This measure is in scope whether procured by a client directly or part of main build works contract.

Assessment

At design stage: check specifications and manufacturer's literature and policies for compliance with criteria.

At handover stage: check materials' receipts for compliance with specification or carry out a site visit. For retail spaces, a site visit must be carried out.

At occupancy stage: if window coverings have been changed or added to then repeat the handover stage assessment. If this measure was achieved at handover stage and the window coverings have not been changed or added to, this measure will be achieved by default. For retail, check that each VDU still has the appropriate glare control.

Rationale

Glare control is important for occupants comfort, particularly in relation to users' workstations. The Health and Safety (Display Screen Equipment) Regulations 1992 (Amended 2002) Schedule to Regulation 3 requires that: 'Windows shall be fitted with a suitable system of adjustable covering to attenuate the daylight that falls on the workstation'. This requirement is

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Daylight glare control (continued)

commonly met by provision of internally fitted, externally fitted or encapsulated blinds to external windows and atria windows.

In a retail environment, where there are few VDUs and where it may not be appropriate cover to the windows, the provision of individual glare control for each VDU is acceptable.

Guidance

Window coverings

The manufacture of window coverings and their materials should not contribute to resource depletion or persist in the environment if disposed of (e.g. to landfill). This aspect is covered by good practice measures relating to material selection; however, for blinds, and particularly fabric blinds, the material selection for reasons of wellbeing and its physical and environmental performance are closely linked and should be considered together in any process of specification. For example fabric blinds should meet the Eco-tex 100 Standard.

Although the VLT rate is provided by most suppliers of blinds the following guidance can assist in the calculation of glare reduction:

Glare reduction is the percentage reduction in visible light transmission through glazing, from glass without covering to that with covering. It can be calculated from the following formula:

$$GR = \left(\frac{VLT1 - VLT2}{VLT1}\right) \times 100$$

Where:

- VLT1 is the visible light transmission of the window without treatment; and
- VLT2 is visible light transmission of window after treatment.

Visible light transmission and glare reduction are related and to reduce glare the amount of visible light transmitted must be reduced.

Retail space

This measure is only in scope where VDUs are installed in a space where daylight falls; in practice this is the space that is less than 6m from the window. If the window has been boxed in as part of the fitout, then this measure is not in scope. Where the retail space is within a shopping mall and the windows open onto the covered landlord space then this measure will not be in scope.

Bespoke joinery can be used to create a screen that prevents glare.

Useful papers on daylight and window treatments, Daylight Dividends.

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Wellbeing
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25
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If you would like to comment on this measure please email **support@skarating.org**

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Ventilation rates

Criteria

Ventilation rate is at least as good as the rates shown below for each of the spaces:

Space	Minimum ventilation rate
Office space	12 litres per person per second
Retail space	5 litres per person per second
Changing/fitting rooms	10 air changes per hour
Toilets	5 air changes per hour

Scoping

This measure applies to mechanically ventilated spaces if the ventilation strategy is being changed, e.g. if the AHU is being replaced or new equipment is being installed.

This measure applies to naturally ventilated spaces if the windows are being changed.

Assessment

At design stage: check specifications state the designed ventilation rate.

At handover stage: review testing and commissioning report to confirm ventilation rates.

At occupancy stage: check reports show that during the first year of occupation the ventilation system has been tested to ensure that the actual ventilation rates meet the designed ventilation rates.

Rationale

Maintaining adequate fresh air within these spaces is important to the health and productivity of the occupants.

Guidance

Effects of Ventilation on Academic Performance, Derek Clements- Croome, Reading University, CIBSE, details the results of a study of CO2 levels on student productivity.

BCO Guide to Specification, British Council for Offices, 2009.

Heating, ventilating, air conditioning and refrigeration, Guide B, CIBSE, 2005.

Environmental Design, Guide A, CIBSE 2006.

Fit-out benchmark & assessment tool

Wellbeing
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D33
ID

40
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If you would like to comment on this measure please email **support@skarating.org**

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CO_2 monitors

Criteria

CO_2 sensors are installed to control the mechanical ventilation to ensure that ventilation is increased when CO_2 concentrations rise above 0.25% CO_2 (as shown in CIBSE Guide B – see guidance below).

Scoping

This measure applies to mechanically ventilated interior spaces if the ventilation strategy is being changed, e.g. if the AHU is being replaced or new equipment is being installed. If existing ductwork is being relocated or an existing AHU is being relocated then this is not considered to be a change in ventilation strategy so this measure would not be in scope.

Assessment

At design stage: review specifications and contracts.

At handover stage: check the specified equipment was installed by reviewing as-built drawings or checking invoices.

At occupancy stage: review reports and check that during the first year of occupation the CO_2 monitoring system has been tested to ensure that it has been operating correctly.

Rationale

Air change rates impact the level of CO_2 and have a direct relationship with indoor air quality and airborne transmission of respiratory infections. Control of airflow rates can be achieved through CO_2 sensors to establish a minimum rate.

Guidance

It is up to the assessor to determine, in consultation with the M&E engineers, whether this measure is in scope if the layout is being changed. Some guidance is given below:

If grilles are being moved to suit a layout, such as moving from open plan to creating meeting rooms, then the additional cooling loads for meeting rooms is far greater than that of open plan desks in the same area so this would constitute a change in strategy.

If grills are simply being moved around in a suspended ceiling to improve the air distribution into more populated areas, without subdiving spaces, then this would probably not constitute a change in strategy.

Heating, ventilating, air conditioning and refrigeration, Guide B, CIBSE, 2005.

CO_2 levels affect performance and productivity. A report by Dr Derek Clements-Croome, Reading University, details the results of a study of CO_2 levels on student productivity.

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Acoustic design

Criteria

An acoustician who is a corporate member (or higher) of the Institute of Acoustics or whose company holds membership of the Association of Noise Consultants is part of the design team.

For office projects the criteria from the AIS Guide to Office Acoustics (2011) or the BCO Guide to Fit Out (2011) are used as design targets.

The combined background noise and unoccupied noise ratings for building services and external intrusion are NR35 to NR45 for open plan offices and NR35 for cellular offices.

Reverberation times on site are met in accordance with BS8233:1999 (Table 8) as shown below:

Room volume m^3	Reverberation time for speech *s*
50	0.4
100	0.5
200	0.6
500	0.7
1000	0.9
2000	1.0

For large spaces such as open plan offices (where one room dimension is more than six times another room dimension) then guidance given in the *AIS Guide to Office Acoustics* should be followed.

Scoping

This measure applies to all fit out and refurbishment projects that include at least one of the following: open plan or cellular offices, restaurant/canteen seating areas, new air handling units being installed or replaced, hard finishes being installed.

Assessment

At design stage: check that acoustician is a corporate member (or higher) of the Institute of Acoustics, or whose company holds membership of the Association of Noise Consultants and where applicable that the design targets for the acoustic quality of the space meet the criteria.

At handover stage: Demonstrate with on-site tests carried out (or supervised by) an acoustician who is a corporate member (or higher) of the Institute of Acoustics or whose company holds membership of the Association of Noise Consultants, that the criteria have been achieved.

At occupancy stage: This measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

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Acoustic design (continued)

Rationale

Studies have confirmed that exposure to workplace noise can have a detrimental effect on performance. Acoustic problems and disturbance are often derived from either long reverberation times (RT) or from noise outside the room and poor sound insulation.

By ensuring that an acoustician is part of the design team from the building and working towards recognised standards, an efficient and more comfortable environment can be achieved for the occupants.

Guidance

BCO Guide to Fit Out – 3.9 Acoustics – BCO 2011.

AIS Guide to Office Acoustics – AIS 2011.

BS8233:1999 (Table 8).

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Occupant HVAC control

Criteria

Local occupant controls are installed to enable occupants to adjust the temperature of different areas within the office. Where the fit-out is to category A standard, with no known tenant, the heating and cooling controls must have the capacity to be zoned by the incoming tenant.

Scoping

This measure applies only to those services (heating, ventilation and/or air conditioning) that have been installed as part of the fit-out. If no changes have been made to existing services then this measure should not form part of the assessment.

Assessment

At design stage: check drawings show the location of the occupant controls and define appropriate thermal zones. For category A fitouts, drawings and specifications must be provided showing how future controls can be fitted by incoming tenants.

At handover stage: carry out a site visit to confirm the location of the occupant controls, or connections for future controllers for category A spaces.

At occupancy stage: if controls have been changed or added then carry out the handover stage assessment. If this measure was achieved at handover stage and controls have not been changed or added, this measure will be achieved by default.

Rationale

The ability to control local temperature is important for an occupant's sense of wellbeing.

Guidance

Faber & Kell's Heating and Air Conditioning of Buildings (10th edition), Elsevier.

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Low VOC finishes

Criteria

All products used in the fit-out have low or zero VOC emissions.

The definition of 'low' VOC emissions is product-dependent and is based on compliance with the below:

1. The product has been awarded one of the following labels:
   - EMICODE – Levels 1 or 2
   - Blue Angel
   - M1
   - Eurofin Indoor Air comfort GOLD standard

Or

2. the product has been tested to the following British Standards, and has passed:

Varnishes:	BS EN 13300:2001
Wood panels:	EN 13986:2004
Timber structures:	EN 14080:2005
Wood flooring:	EN 14342:2005
Floor coverings:	EN 14041:2004
Suspended ceiling tiles:	EN 13964:2004
Flooring adhesives:	EN 13999-1:2007
Adhesives for hanging flexible wall coverings:	BS 3046:1981
Wall-coverings:	EN 233:1999, EN 234:1997, EN 259:2001, EN 266:1992

   These products should all meet the requirement for formaldehyde E1 as tested to standard BS EN 717-1:2004

Or

3. All products used on the project have an HPD Standard that meets the full disclosure of intentional ingredients requirements (see guidance).

Scoping

This measure is in scope where one or more of the following products has been installed in an interior fit-out:

- varnishes;
- wood panels, timber structures, wood flooring;
- resilient, textile and laminated floor coverings;
- flooring and wall adhesives;
- wall coverings;
- suspended ceiling tiles;
- joinery; or
- furniture.

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Low VOC finishes (continued)

Assessment

At design stage: review specifications to ensure conformance with criteria.

At handover stage: collate manufacturers' data for the installed products to ensure that they have been tested to British Standards or have been awarded one of the approved product labels above.

At occupancy stage: if new products have been installed then repeat the handover stage assessment, if this measure was achieved at handover stage and no new products have been installed, this measure will be achieved by default.

Rationale

This good practice measure addresses Indoor Air Quality. Volatile Organic Compounds (VOCs) are organic chemicals which evaporate from liquid or solid form at room temperature and enter the atmosphere. A common example is formaldehyde which has a boiling point of -19°C. While not all VOCs are harmful to health many of the ones used in construction products can cause harm when people are exposed for extended periods of time in an enclosed space. The best way to control exposure to pollutants is not to install products that give off gaseous VOCs.

Guidance

A number of European countries have introduced labelling schemes to show the VOC emissions from of various products used within the indoor environment.

- EMICODE is a German label for adhesives, sealants, parquet varnishes and other construction products.
- Blue Angel is a German label for wooden products, adhesives and flooring.
- M1 is a Finnish label.
- Eurofin is a label operated by Eurofin, a testing company. The 'gold' standard demonstrates compliance with all European VOC labels.

The UK has a set of standards for testing various construction products. One of the test requirements for these products is to test the formaldehyde emission levels. The standards for adhesives (EN 13999-1:2007, and BS 3046:1981) also cover other VOCs.

The Health Product Declaration (HPD) Open Standard by The Health Product Declaration Collaborative is a standard format for disclosing product content and direct health hazards associated with it, and is not an assessment of environmental impacts from the life cycle of this product.

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Low VOC finishes (continued)

The HPD standard provides authoritative guidance on how to properly prepare a Health Product Declaration for a product. In addition to the written guidance, the HPD standard includes a template which provides a visual reference describing how the declared information should be presented with form field prompts and approximate ordering. The declaration template is free to access.

Declare: a database that supports the Living Building Challenge by providing a transparent materials database that project teams can select from.

Cranfield Institute of Environment and Health (IEH).

Indoor Air Quality UK.

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Cleaning of existing air supply ductwork

Criteria

The existing air supply ductwork is cleaned as part of the fit-out works.

Scoping

This measure applies if there is an existing HVAC system that is not being replaced.

This measure will not be in scope:

- if the fit-out encompasses only a few floors in a building with a central HVAC system for the whole of the building. This is because the benefits from duct cleaning are only achieved if the whole system is cleaned; if the whole system is not cleaned, the noncleaned elements will re-contaminate the cleaned elements as the air flows through the system; or
- if following initial inspection, the ductwork is deemed to be clean. This is to ensure that effort is not wasted if the ductwork has been cleaned recently.

Assessment

At design stage: check specification or obtain confirmation that a specialist ductwork cleaning firm will be employed.

At handover stage: check invoices to confirm that the ductwork was cleaned.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

All interiors with mechanical ventilation should be supplied with uncontaminated air. If not properly maintained, ductwork can suffer from particulate (dust) contamination and microbial contamination. These pollutants contaminate the air passing through the ductwork and can cause allergic reactions in occupants.

Guidance

Hygienic maintenance of office ventilation ductwork, TM26, CIBSE, 2000.

Internal cleanliness of ventilation systems, Guide to good practice, Heating and Ventilating Contractors' Association, 2002.

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Printer copier equipment area ventilation

Criteria

Dedicated local extract vents for printing and photocopying rooms or areas are provided.

Scoping

This measure applies if the installation of office equipment is part of the fit-out contract or if separate rooms are defined as part of the fit-out.

Assessment

At design stage: check the drawings show the locations of printer areas and the dedicated local extract vents.

At handover stage: carry out a site visit to confirm the locations of printer areas and dedicated local extract vents.

At occupancy stage: if the location of the printer areas or the local extract vents has changed then carry out the handover stage assessment. If this measure was achieved at handover stage and the location has not changed, this measure will be achieved by default.

Rationale

Printers and photocopiers give off a number of toxic gases, the main one being ozone. Ozone is unstable and usually decomposes rapidly.

However, if the area around a printer is not well ventilated then concentrations of ozone can build up, causing a number of symptoms such as irritation to the eyes and upper respiratory tract. The provision of a separate extract vent in areas designated for printers and photocopiers can ensure that the build up of ozone does not occur.

Guidance

Workers Health Centre fact sheet on photocopiers.

Ozone: Health hazards and precautionary measures, guidance note EH38, HSE, 1983.

Photocopiers and printers in the office, a bulletin produced by the Transport and Salaried Staffs Associate Trade Union.

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Fine air filters

Criteria

Mechanical ventilation units are fitted with secondary filters; the filter class is between F6 and F9, with an efficiency of 70–98%.

Scoping

This measure applies to all mechanically ventilated buildings.

Assessment

At design stage: check specification documents/clauses state the fine filters will be installed.

At handover stage: check invoices to confirm the filters were installed.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at handover stage.

Rationale

Installation of higher grade filters will prevent particulate matter from entering the building.

Guidance

Air filters, Application Guide 8/97, BSRIA, 1997.

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Staff breakout space

Criteria

1. An adequately sized (0.15m2 per employee) dedicated breakout space is provided for staff. This has to be a separate space from the working area – separated by either a door or enclosed completely from direct contact with the working areas so that sound and visual contact do not prohibit activities in both areas.
2. If there is no dedicated kitchen for staff already provided elsewhere, a hot beverage and light food-preparing provision must be made and is to include as a minimum a storage and washing area, hot/cold drinking water and an adequately sized fridge.

Scoping

This measure is in scope for all assessments where a dedicated breakout space for staff does not already exist. If one already exists, this measure is not in scope.

Assessment

At design stage: obtain evidence from the client/store manager about the anticipated number of staff that will be on a break at any one time.

Review drawings and review specifications to confirm that the criteria have been met in the breakout space.

At handover stage: carry out a site visit and check that a breakout room has been provided and the criteria are the same as agreed at design stage.

At occupancy stage: check that a designated breakout space and all provisions is still available. Check with the client/store manager that the actual number of staff that are on a break at any one time is the same or fewer than determined at design stage. If the number has increased then check that additional provisions have been provided in the breakout space to reflect the increase in staff numbers.

Rationale

A rest area provided for staff should be designed to maximise staff well-being when they are taking a break from working. It provides an opportunity for staff to interact on a social level that can lead to healthier workplace relationships and work satisfaction. Providing an opportunity to reduce high blood pressure can also reduce sickness, and increase productivity and general wellbeing.

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Staff breakout space (continued)

Guidance

When a staff breakout space has already been provided for staff, for example on another floor that is not part of the fit-out project and is convenient for staff to access, then this measure is not in scope. This is to ensure that the project is not assessing something that already exists.

Good day lighting and views out are beneficial to people's health. In retail, sales space frequently does not have natural day lighting, then ideally the breakout space should have views out and good day lighting. The design team should aim to ensure that the layout of the workplace/retail space enables the breakout space to be provided with a window. Good practice standards are:

- an average daylight factor of 5%;
- a view of the sky from all spaces within the room; and
- a view out to enable eyes to refocus: there should be at least 10m between the window and any other building.

The requirements for day lighting and a view out have not been set as criteria for this measure for the initial releases of this measure, as it is recognised that it can be difficult to provide access to a window in some locations and especially retail break out spaces.

Acoustic separation between the breakout space and other working/retail spaces is also beneficial to staff wellbeing. This is addressed by measure D29 Acoustic Design.

Daylighting and Window Design. Lighting Guide LG 10. 1999. CIBSE.
A short handbook on Measuring Well-being is produced by the Centre for Well-being at nef.

The Emotional Content of Physical Space. Farschi & Fisher 2000 University of Reading.

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Outside views

Criteria

All workstations intended for non-transient workers are within seven metres of external windows or benefit from an outside view; the view must be visible within 65 degrees rotation from the normal working position at those workstations.

For the purpose of these criteria:

- transient workers include visitors and those using touchdown workstations;
- 'hot-desking' or shared desks are considered to be part of the non-transient workstation provision; and
- outside views are views to external and atrium spaces that benefit from full daylight.

Scoping

This measure applies if workstations are being installed.

Assessment

At design stage: check plans to ensure internal layouts are in accordance with the criteria.

At handover stage: carry out a site visit to confirm internal layouts are in accordance with the criteria.

At occupancy stage: if internal layouts have changed then carry out the handover stage assessment. If this measure was achieved at handover stage and internal layouts have not changed, this measure will be achieved by default.

Rationale

The aim is to ensure high quality workspaces and wellbeing for occupants. Key to this are two factors: reduction of eye strain by ensuring access to long distance views, and the psychological benefit experienced from views to naturally lit spaces.

Guidance

BCO Guide to Specification, British Council for Offices, 2009.

Metric Handbook: Planning and Design Data (4th edition), Littlefield, D., Architectural Press, 2012.

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VOC monitors

Criteria

Install a system for monitoring and recording volatile organic compound (VOC) concentrations in fit-out spaces that are occupied by any person for 30 minutes or more at a time.

Scoping

This is applicable to any space that is occupied by people for more than 30 minutes.

Assessment

At design stage: review specifications and contracts and ensure they meet the criteria.

At handover stage:

- check the specified equipment was installed by reviewing as-built drawings or checking invoices;
- check that the tenant procedures for monitoring VOC levels are included within the building user guide; and
- carry out a site visit.

At occupancy stage: review the tenant's records to ensure that VOC levels have been recorded on a regular basis (at least weekly; daily would be ideal). Review reports showing that, during the first year of occupation, the VOC monitoring system has been tested to ensure that it has been operating correctly.

Rationale

This good practice measure addresses indoor air quality and is related to D40 CO_2 monitors. Volatile organic compounds (VOCs) such as benzene, formaldehyde and naphthalene are emitted by finishes and products. They are known to have health effects and if sustained over a long period of time can cause sick building syndrome. Installing monitoring systems will raise awareness of the VOC levels in each retail space and encourage the occupier to undertake corrective actions to reduce VOC polluting episodes.

Guidance

Volatile organic compounds are organic chemicals which evaporate from liquid or solid form at room temperature and enter the atmosphere. A common example is formaldehyde which has a boiling point of –19°C. While not all VOCs are harmful to health, many of the ones used in construction products can cause harm when people are exposed for extended periods of time in an enclosed space.

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VOC monitors (continued)

Where a BMS is in place or being installed as part of the fit-out, then the VOC sensors should be linked to the BMS to provide an automated recording and analysing system.

For smaller spaces that do not have a BMS a more basic system where sensors have to be manually monitored would be acceptable.

For both systems, records should be kept that show VOC levels have been recorded at least on a weekly basis, or more frequently if possible.

This measure is applicable to spaces that are regularly occupied by people, so includes office spaces, shops, kitchens, restaurants and breakout spaces, but not store rooms or corridors.

Fit-out benchmark & assessment tool

Wellbeing
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If you would like to comment on this measure please email **support@skarating.org**

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Fit-out VOC monitoring

Criteria

During the fit-out process, monitor volatile organic compound (VOC) concentrations in the fit-out space. Records are kept and the site manager regularly reviews the VOC levels.

Scoping

This measure applies to all fit-outs.

Assessment

At design stage: obtain commitment from the design team that the fit-out contractor will monitor and keep records of VOC levels on site.

At handover stage: review the records of VOC levels during the fit-out process.

At occupancy stage: this measure is not assessed. The measure is achieved by default if it was achieved at the handover stage.

Rationale

This good practice measure addresses indoor air quality and is related to **D40 CO^2 monitors**. Volatile organic compounds (VOCs) such as benzene, formaldehyde and naphthalene are emitted by products. They are known to have health effects and, if present over a long period of time, can cause sick building syndrome.

New products and finishes emit the highest levels of VOCs so this measure is aimed at raising awareness of VOC levels during the fit-out process.

Guidance

Cranfield Institute of Environment and Health (IEH).

Indoor Air Quality UK.

Fit-out benchmark & assessment tool

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