

REPORT 014

# MINERAL WOOL CEILING TILES:

## A Resource Efficiency Action Plan

June 2012

Prepared by the Association of Interior Specialists



A contribution to delivering the targets in the joint government and industry Strategy for Sustainable Construction



Carbon Emission Reduction Target

Planned Approach to Training

Climate Change Bill

Code for Sustainable Homes

CONSTRUCTION

Whole Life Cycle Assessment

Whole Life Value

Sustainability

Integrat

## MINERAL WOOL CEILING TILES: A Resource Efficiency Action Plan

---

This report is part of a series of outputs aimed at supporting the delivery of the targets within the Strategy for Sustainable Construction, a joint industry and government strategy published in June 2008. [www.bis.gov.uk/policies/business-sectors/construction/sustainable-construction](http://www.bis.gov.uk/policies/business-sectors/construction/sustainable-construction)

The project was initiated by the Association of Interior Specialists (AIS). AIS is the leading authority in the commercial interiors fit out sector:

- Setting technical standards
- Offering independent advice
- Leading in sustainability
- Providing opportunity to members



Tel: 0121 707 0077

Email: [info@ais-interiors.org.uk](mailto:info@ais-interiors.org.uk)

[www.ais-interiors.org.uk](http://www.ais-interiors.org.uk)

Funding for some actions has been provided by WRAP (Waste and Resource Action Programme), which has also supported industry in the development of the Action Plan. WRAP's vision is a world without waste, where resources are used sustainably. WRAP works with businesses, individuals and communities to help them reap the benefits of reducing waste, developing sustainable products and using resources in an efficient way. [www.wrap.org.uk](http://www.wrap.org.uk)

The research for this report was carried out by the Ceilings Sustainability Partnership (CSP), which is a working party of the AIS Technical Committee. [www.ais-interiors.org.uk](http://www.ais-interiors.org.uk)



The report benefited from advice on structure and content from Jane Thornback of the Construction Products Association. [www.constructionproducts.org.uk](http://www.constructionproducts.org.uk)

The 'Delivering the Strategy Targets' series was initiated by Jane Thornback of the Construction Products Association. The Association is the umbrella body for construction product manufacturers and merchants. [www.constructionproducts.org.uk](http://www.constructionproducts.org.uk)

## FOREWORD

---

As President of AIS I am delighted to see our industry working together to address the issue of waste going to landfill during the fit out and refurbishment process.

This Action Plan for Mineral Wool Ceiling Tiles clearly demonstrates that the interior fit out sector is aware of its impact on the environment and the potential to recover valuable resources from the huge legacy of installed suspended ceilings that use mineral wool as a key constituent of the exposed tiles.

The Action Plan highlights seven challenges that need to be addressed, including two study areas: one looking at the logistical barriers for recycling mineral wool tiles, the other at finding alternative uses for them. The Ceilings Sustainability Partnership (CSP) has developed a clear strategy to tackle these challenges.

There are a number of practical ideas contained within the Action Plan that will be put in place immediately. These include means by which to identify products and put building occupants in touch with experts who can assess and advise on alternatives to landfill where possible. Other long term studies into the logistics of moving these materials around the country and finding alternative uses for them are well underway.

CSP will continue to meet regularly, implement the Action Plan and consider ways to improve it.

Part of AIS's mission is to drive sustainability and the green agenda. Its ultimate goal is to bring an end to wasted materials during fit out and refurbishment. This, along with the Action Plan for Plasterboard which AIS is also involved with, is just the start.



**Jonathan Cherry**

President, Association of Interior Specialists 2011 - 2013

REPORT 014

## EXECUTIVE SUMMARY

---

This Resource Efficiency Action Plan was initiated by the Association of Interior Specialists (AIS) and developed by the Ceiling Sustainability Partnership (CSP), which is made up of manufacturers, distributors and installers of suspended ceilings, to ensure that the resources used to manufacture Mineral Wool Ceiling Tiles<sup>1</sup> are not wasted or having a detrimental impact on the environment.

The CSP recognised that other materials such as gypsum, steel, aluminium and timber used in the manufacture of suspended ceiling tiles all have routes to existing recycling schemes, whereas the majority of Mineral Wool Ceiling Tiles were going to landfill at end of life. This is because of the relative low value of the material, and the perceived cost of landfill against the cost to correctly identify and recycle them. Despite the material being recyclable it is believed that hundreds of thousands of square metres of Mineral Wool Ceiling Tiles are sent to landfill each year, representing a significant loss of valuable resource and waste of the energy, water and materials that go into making them.

It is not possible to estimate the amount of material currently going to landfill, but recent research<sup>2</sup> identified that of the 20.5 million square metres of suspended ceilings being installed each year, approximately 16.5 million square metres are mineral wool.

The two key challenges facing the CSP in achieving its objectives were identified as returning materials to the original factory for closed loop recycling and finding an alternative use for the material in another process, these required assistance in research and trial projects, where other challenges such as identification of the manufacturer of the tiles, data on how much material is currently going to landfill, altering the practice of installing ceilings throughout a speculative development prior to a tenants fit out, reducing waste from damaged tiles during maintenance, and material savings through bespoke solutions from early engagement with manufacturers, could be dealt with within the CSP.

Finding solutions to these two key challenges is fundamental and they sit hand in glove; the issue of collecting storing and transporting this resource from stripped out ceilings is as important as what and how the tiles can be recycled. The creation of end markets for this resource is critical in giving the tiles a 'value' as currently the financial incentives are simply not there to encourage waste handlers to return the tiles to the original manufacturers where such a scheme exists.

This Action Plan is one of a series of waste reduction and resource efficiency Action Plans for construction materials. Others include joinery, flooring, plasterboard and windows. Together they form a wealth of new knowledge, practical recommendations and specific actions to be taken forward and implemented by industry in collaboration and partnership with government bodies and regulators. AIS is part of the Plasterboard Sustainability Partnership which produced the Resource Efficiency Action Plan for Plasterboard.

---

1. Mineral wool ceiling tiles, are ceiling tiles manufactured using stonewool, glasswool, and wet felted mineral wool.

2. Source AMA research report on amount of materials used annually in the construction industry, and issued by WRAP February 12

<b>CONTENTS</b>		<b>Page</b>
<b>1</b>	<b>Introduction</b>	<b>8</b>
<b>2</b>	<b>How the Action Plan was developed</b>	<b>9</b>
<b>3</b>	<b>List of stakeholders and contributors</b>	<b>10</b>
<b>4</b>	<b>The UK mineral wool ceiling tile industry</b>	<b>11</b>
<b>5</b>	<b>Waste quantities of mineral wool ceiling tiles in the UK</b>	<b>12</b>
<b>6</b>	<b>Policy and legislative framework</b>	<b>12</b>
<b>7</b>	<b>Waste reduction: challenges facing the mineral wool ceiling tile industry</b>	<b>13</b>
<b>8</b>	<b>A resource efficiency action plan for mineral wool ceiling tiles</b>	<b>15</b>
	A) Develop viable business models for recycling of materials	<b>16</b>
	B) Find alternative uses for end-of-life mineral wool tile products	<b>17</b>
	C) Develop a method for segregating different ceiling tiles	<b>18</b>
	D) Improve information on ceiling waste going to landfill	<b>19</b>
	E) Investigate Cat A fit out practices and their impact on wastage	<b>20</b>
	F) Improve knowledge of methods to correctly remove tiles when accessing services to minimise damage	<b>21</b>
	G) Publicise to specifiers the bespoke sizing services offered by manufacturers	<b>22</b>

## Annexes

Annex 1: List of manufacturers of Mineral Wool Ceiling Tiles currently available in the UK, along with contact details to discuss possible recycling options

## 1. Introduction

---

- 1.1 This Action Plan was initiated by the Association of Interior Specialists (AIS) because of its awareness of the growing concern for reducing waste and improving the efficient use of materials.
- 1.2 This Resource Efficiency Action Plan is intended to assist the sector in reducing the amount of Mineral Wool Ceiling Tiles going to landfill as waste from construction projects and strip out.
- 1.3 Suspended ceilings are manufactured using a variety of materials which include steel, aluminium, gypsum plasterboard, fabric, glasswool, stonewool, timber, mdf and mineral wool. 'Mineral Wool Ceiling Tiles'<sup>3</sup> are the principal ceiling type used in offices<sup>4</sup>, schools, hospitals, retail units and many other non-domestic buildings. They are rarely used in domestic situations. Unlike other ceiling materials and components, such as gypsum plasterboard, aluminium and steel, which are readily recycled through existing recycling schemes, 'Mineral Wool Ceiling Tiles' including stonewool, glasswool, wet felted mineral wool and mineral wool tiles are mostly sent to landfill. This is because of the relative low value of the material and the perceived low cost of landfill against the cost to correctly identify them and recycle them. The exact size of the problem is unknown, but it is estimated that despite being recyclable hundreds of thousands of square meters of Mineral Wool Ceiling Tiles are sent to landfill each year. This represents a significant loss of valuable resource and waste of the energy, water and materials that went into making them.
- 1.4 Mineral Wool Ceiling Tiles will invariably be damaged when removed and may have been repainted or show their age through discoloration, meaning they are rarely in a suitable condition to be reused. Any practical alternative is likely to be for the constituent fibrous materials used as a component of the tiles. This will be one of the key action priorities in the Action Plan.
- 1.5 The Action Plan will explore alternative markets for Mineral Wool Ceiling Tiles in a wide number of sectors including agriculture, horticulture, construction, building materials, packaging, and insulation.
- 1.6 Due to the way in which waste is classified, it is impossible to accurately calculate the amount of Mineral Wool Ceiling Tiles currently going to landfill. However the fit out market is currently installing around 16.5 million m<sup>2</sup> (approximately 95 kilo tonnes of mineral wool tiles annually). With much of this new material replacing older tiles, and new installations generating approximately 10% (165,000m<sup>2</sup>) of off-cuts, it is clear that huge amounts of material are going to waste.
- 1.7 The Construction Products Association facilitated the initiation of the project as part of its contribution to the delivery of targets within the Joint Government and Industry Strategy for Sustainable Construction, published in June 2008.
- 1.8 The external research work into logistics and alternative uses was funded by WRAP.

---

3. Mineral wool ceiling tiles, are ceiling tiles manufactured using stonewool, glasswool, and wet felted mineral wool.

4. Source AMA research report on amount of materials used annually in the construction industry, and issued by WRAP February 12

- 1.9 The Action Plan will be taken forward by a new group called the Ceilings Sustainability Partnership (CSP) which has evolved from the Action Plan project stakeholder group. This partnership will act as custodian of the Action Plan and will promote its implementation throughout the industry.
- 1.10 This Action Plan is one of a series of waste reduction and resource efficiency Action Plans for construction materials. Others include joinery, flooring, plasterboard, windows and packaging. Together they form a wealth of new knowledge, practical recommendations and specific actions to be taken forward and implemented by industry in collaboration with government bodies and regulators.

## 2. How the action plan was developed

---

- 2.1 The initiative was originally identified by the Association of Interior Specialists (AIS) through the AIS Environmental Group (AEG) which is a working group of the AIS Technical Committee. The group recognised the extent of the problem and the need for industry to work together in the same way that the plasterboard industry had done through the Plasterboard Sustainability Partnership (PSP) which produced a Resource Efficiency Action Plan for Plasterboard.
- 2.2 The plan was developed by AIS, which brought together members from across the industry supply chain including manufacturers, distributors, installers of ceilings and other stakeholders.
- 2.3 This group formed the Ceiling Sustainability Partnership (CSP).
- 2.4 The CSP met to decide on the purpose and scope of the Action Plan.
- 2.5 The Resource Efficiency Action Plan for Mineral Wool Ceiling Tiles is aimed at the industry at large especially all those involved with the specification and procurement, manufacture, distribution, installation, maintenance and deconstruction of ceilings.

### 3. List of stakeholders and contributors

3.1 The following organisations gave generously of their time to participate in discussions and comment on the development of this Resource Efficiency Action Plan.

<b>Armstrong World Industries Ltd</b>
<b>Association of Interior Specialists</b>
<b>Construction Products Association</b>
<b>Interior Motives International Ltd</b>
<b>Knauf Danoline</b>
<b>Knauf Drywall</b>
<b>Knauf AMF Ceilings Ltd</b>
<b>Minster Insulation and Dry Lining</b>
<b>OWA (UK) Ltd</b>
<b>Rockwool Ltd trading as Rockfon</b>
<b>SAS International Ltd</b>
<b>Saint-Gobain Ecophon Ltd</b>
<b>WRAP – Waste &amp; Resource Action Plan</b>

### 4. The UK mineral wool ceiling tile industry

- 4.1 Research<sup>5</sup> commissioned by WRAP indicated that the market for mineral ceiling tiles<sup>6</sup> including soft fibre was valued at £100 million. This equates to approximately 16.5 million square meters or 95 kilo tonnes of material.
- 4.2 The major manufacturers of mineral wool ceiling tiles supplying the UK market:
- Armstrong World Industries Ltd
  - CEP Ceilings Ltd
  - Knauf AMF Ceilings Ltd
  - OWA (UK) Ltd
  - Rockwool Ltd trading as Rockfon
  - Saint-Gobain Ecophon Ltd
- 4.3 The UK has an estimated 1,100 companies supplying and installing suspended ceilings in the UK. The majority of them are small or medium sized enterprises.
- 4.4 The Association of Interior Specialists (AIS) represents the interests of companies involved in the manufacture, supply and installation of all aspects of commercial interiors fit out.

Figure 1: Location of AIS members, ceiling distribution points and manufacturing with recycling facilities.



5. Source AMA research report on amount of materials used annually in the construction industry, and issued by WRAP February 12.  
 6. Mineral wool ceiling tiles, are ceiling tiles manufactured using stonewool, glasswool, and wet felted mineral wool.

## 5. Waste quantities of mineral wool ceiling tiles in the UK

---

- 5.1 Despite the material being recyclable it is believed that hundreds of thousands of square metres of Mineral Wool Ceiling Tiles are sent to landfill each year, representing a significant loss of valuable resource and waste of the energy, water and materials that went into making them.
- 5.2 It is currently impossible to calculate the exact amount of Mineral Wool Ceilings Tiles going to landfill. This is due to the fact that whilst the waste is recorded, it is accounted for under a number of different European waste codes. There is no specific code for Mineral Wool Ceiling Tiles.
- 5.3 Waste from Mineral Wool Ceiling Tiles is generated in three waste streams:
- Redundant materials from strip out
  - Waste created during the installation process
  - Damage caused by incorrect removal of tiles
- 5.4 Waste disposal costs (April 2012) for Mineral Wool Ceiling Tiles including landfill tax is currently £64 a tonne, this will rise to £80 a tonne by 2014. In addition the cost of a seven cubic meter skip is £50 (which will accommodate approximately 120 square metres of material). Gate fees (a charge made by operators to dispose of materials to designated landfill sites) can be up to £120 a tonne.

## 6. Policy and legislative framework

---

- 6.1 There are a variety of UK and European laws, policies and initiatives aimed at reducing the production of waste and avoiding waste to landfill. These apply to all materials and include:
- Revised Waste Framework Directive (WFD) 2011
  - England Waste Strategy, 2007
  - Hazardous Waste Regulation
  - Waste Incineration Directive
  - Joint Government and Industry Strategy for Sustainable Construction, 2008
  - Landfill Tax
  - REACH-Registration, Evaluation, Authorisation and Restriction of Chemicals
  - Site Waste Management Plans, 2008
  - Construction Products Regulation (from 2013)

## 7. Waste reduction: challenges facing the mineral wool ceiling tile industry

---

- 7.1 The stakeholder input to develop this Resource Efficiency Action Plan for Mineral Wool Ceiling Tiles has identified a series of major challenges that will need to be addressed by the industry and others if Mineral Wool Ceiling Tile waste is to be reduced and these resources used more efficiently.
- 7.2 There are two key challenges which must be addressed in order to significantly reduce waste going to landfill:
- a) the logistics in moving waste from site to a recycling facility
  - b) finding suitable alternative outlets for Mineral Wool Ceiling Tiles
- 7.3 The Action Plan will address the seven problems/challenges surrounding these waste streams that have been identified by the CSP, which are as follows:

### Lack of efficient business models for returning materials for recycling

- 7.4 Due to the relatively low value of the material, there is a perception that it is cheaper and easier to dispose of Mineral Wool Ceiling Tiles during a refurbishment project, than return the tiles to the original manufacturer to recycle them.
- 7.5 Research to establish a true cost model and an efficient logistics model will be crucial to the success of this plan meeting its goal of reducing Mineral Wool Ceiling Tile waste to landfill.

### Lack of alternative options, other than return to manufacturer, for mineral wool tile products

- 7.6 Currently there are only two alternatives, landfill, or back to the original manufacturer for recycling into new tiles. Alternative uses for the mineral wool fibres in the tiles need to be identified, for example as a binder in the manufacture of building blocks, to offer the waste industry a possible market. This would put a value to the material, and help develop a logistical model.

### Lack of a means of identifying different ceiling tiles, so they can be segregated and placed in an appropriate recycling stream

- 7.7 Different brands of Mineral Wool Ceiling Tiles can look very similar. This makes it difficult for building managers to identify the original manufacturer and arrange for the return of the materials at end of life.
- 7.8 A simple industry wide way of putting building users in touch with a manufacturer to correctly identify tiles and arrange their return for recycling where appropriate is needed.

### Lack of data on the quantities and types of waste from ceilings going to landfill

- 7.9 There is no clear data on the amount of Mineral Wool Ceiling Tiles going to landfill. This is due to the fact that whilst the waste is recorded, it is accounted for under a number of different European waste codes. There is no specific code for Mineral Wool Ceiling Tiles. Estimates based on new materials going to replace older tiles in a refurbishment project suggest it is at least hundreds of thousands of square meters of material each year.
- 7.10 It is vital that accurate data is collected annually so that stakeholders can make informed decisions on any investments required to address the issue and the industry can measure the effectiveness of this Action Plan.

### Cat A fit outs can result in perfectly good ceilings being replaced unnecessarily

- 7.11 Developers are keen to be able to show prospective tenants that the interior of the building is ready for occupation so it is normal practice to carry out the first stage of fitting, (this is known as a Cat A<sup>7</sup> fit out) and usually includes a suspended ceiling.
- 7.12 This ceiling is usually dismantled during the tenants fit out to allow access to the building services. Ceilings may even be replaced to suit the performance or aesthetic requirements of the incoming tenant. They are often replaced again at the end of a lease.
- 7.13 This practice if left unchecked can generate huge quantities of waste that could be avoided.

### Poor understanding amongst clients, facility managers, operatives, M&E contractors and other stakeholders who need to access services above a ceiling, of how to remove tiles correctly to minimise damage

- 7.14 Ceilings are normally installed by fully trained specialists who are familiar with the correct procedures to remove and replace ceiling tiles. There is evidence however from site visits carried out by AIS advisory service consultants that ceilings are being damaged by untrained staff, removing tiles to gain access to the service void above. This is causing unnecessary waste that can be avoided.

### Lack of awareness by specifiers that products can be produced by ceiling manufacturers to site specific sizes to minimise waste

- 7.15 It is estimated that there is 10% waste generated through offcuts.
- 7.16 A proportion of this waste can be avoided by producing ceiling tiles to specific sizes in the manufacturing process. Specifiers need to be made aware of these savings to significantly reduce this waste.
- 7.17 A campaign to make specifiers aware of the savings that can be made will reduce some of this waste.

7. Cat A fit out: Category A standard fit out is defined as being the basic specification that a landlord or developer will offer to potential tenants to indicate how an office can/will look. Typically this will include: Suspended ceilings amongst other elements (calfordseaden 2010).

## 8. A resource efficiency action plan for mineral wool ceiling tiles

- 8.1 The following Resource Efficiency Action Plan for Mineral Wool Ceiling Tiles addresses the key challenges, recommendations and practical actions that have been identified as essential if the sector is to improve its resource efficiency and decrease the quantity of waste going to landfill.
- 8.2 The following have been identified as the principal action areas for improvement by the sector. These are expanded upon in the forthcoming pages.

<b>A</b>	Develop viable business models for recycling of materials
<b>B</b>	Find alternative uses for end-of-life mineral wool tile products
<b>C</b>	Develop a method for segregating different ceiling tiles
<b>D</b>	Improve information on ceiling waste going to landfill
<b>E</b>	Investigate Cat A fit out practices and their impact on wastage
<b>F</b>	Improve knowledge of methods to correctly remove tiles when accessing services to minimise damage
<b>G</b>	Publicise to specifiers the bespoke sizing services offered by manufacturers



## A. Develop viable business models for recycling of materials

### Overview

A large number of the ceiling tile manufacturers currently offer to accept tile materials back for recycling. However there are conditions, such as quantity and original date of manufacture.

This often involves the collection of the ceiling tiles directly from site rather than a transit site.

Ceiling tiles are generally distributed by a third party via distribution depots.

### Challenges

- This may bring in mandatory requirements of waste handling, in effect making any hub a waste transfer site, with associated costs and responsibilities; this could potentially put a burden and a cost on the distributor.
- A key question would be how to provide collection hubs for the storage of the tiles that would be commercially viable.
- The cost of identifying, packing, storing and transporting the waste materials back to the manufacturer may be significant. This can be a major disincentive to recycling Mineral Wool Ceiling Tiles.

### Next Steps

	Milestones	Action	Key Partners
<b>1</b>	Mid/late 2012	Consult with logistics organisations to explore the development of efficient models for the collection and transportation of materials from site to a recycling facility	CSP AMEC/ WRAP
<b>2</b>	Mid/late 2012	Investigate the development of commercially viable collection hubs for the storage of tiles	CSP AMEC/ WRAP
<b>3</b>	Mid/late 2012	Identifying the cost of packing, storing and transporting the waste materials back to the manufacturer/recycler	CSP AMEC/ WRAP
<b>4</b>	Mid 2012	Address legislative issues concerning transport and storage of mineral wool ceiling tile waste	CSP AMEC/ WRAP

## B. Find alternative uses for end-of-life mineral wool tile products

### Overview

Currently, the only option for end-of-life mineral wool ceiling tiles is to return them to the manufacturer. However, the tiles contain minerals that may have some commercial use to other manufacturing sectors. For example, block and brick manufacturing, where they may have a use as fillers or binding agents or as an inert material for use in horticultural propagation, or even in electricity generation through incineration.

### Challenges

- The ceiling manufacturing sector has no direct contact with these industries and no knowledge of the viability of such a concept. It will approach WRAP to ascertain if funding would be available to carry out a study to identify the extent of mineral wool tiles going to landfill, and the opportunity to use the resources within these tiles within a secondary industry.

### Next Steps

	Milestones	Action	Key Partners
<b>1</b>	Mid 2012	Manufacturers to confirm the chemical composition of their products to Amec, in order to explore alternative uses for these products	CSP AMEC/ WRAP
<b>2</b>	Late 2012	Investigate a wide number of sectors including agriculture, horticulture, construction, building materials, packaging and insulation where they may have a use as fillers or binding agents, or in electricity generation through incineration  This will be done through discussions with trade associations and government  This research will be augmented through the Knowledge Transfer Institute (KTI) to look at other possible uses  A series of trials will be arranged with suitable partners	CSP AMEC/ WRAP
<b>3</b>	Mid 2013	The industry will, through its contacts within AIS and CPA, look to identify alternative uses for mineral tiles as sound absorbing products within the interiors sector	AIS/CSP

## C. Develop a method for segregating different ceiling tiles

### Overview

Mineral Wool Ceiling Tiles are of similar appearance but differ in composition. It is necessary therefore to clearly identify them before they can be placed in an appropriate recycling stream.

### Challenges

- To develop a clear and consistent industry wide method of identification, which would allow informed decisions to be made during a deconstruction for the most appropriate and cost effective method of disposal.

### Next Steps

	Milestones	Action	Key Partners
<b>1</b>	Mid 2012	Develop a clear and consistent industry wide method of identification that would allow informed decisions to be made during a deconstruction for the most appropriate and cost effective method of disposal	AIS/CSP
<b>2</b>	Mid 2012	Develop a database containing manufacturers' products, with identification markings and individual contact details, and alternatives to landfill	AIS/CSP
<b>3</b>	Late 2012	Develop a questionnaire to capture this information	AIS/CSP
<b>4</b>	Late 2012	This information to be hosted on the AIS, and WRAP website	AIS/CSP/WRAP

## D. Improve information on ceiling waste going to landfill

### Overview

There is no clear data on the amount of Mineral Wool Ceiling Tiles going to landfill. This is due to the fact that whilst the waste is recorded, it is accounted for under a number of different European waste codes. There is no specific code for Mineral Wool Ceiling Tiles. Anecdotal estimates based on the quantity of new materials going to replace older tiles in a refurbishment project suggest it is at least hundreds of thousands of square meters of material every year.

It is vital that accurate data is collected annually so that stakeholders can make informed decisions on any investments required to address the issue and the industry can measure the effectiveness of this Action Plan.

### Challenges

- The information needs to be quantitative.
- The lack of hard evidence makes it difficult to justify investment in new processes or procedures that would result in a reduction of waste to landfill. This research could be carried out with minimum cost with assistance from WRAP.

### Next Steps

	Milestones	Action	Key Partners
<b>1</b>	Mid/late 2012	Carry out research to: Establish the size of the mineral wool ceilings industry  Establish how much of the market is refurbishment work, therefore estimating the amount by square metres of ceiling tiles going to landfill	CSP/AIS/WRAP

## E. Investigate Cat A fit out practices and their impact on wastage

### Overview

Ceilings are often installed in speculative developments as part of a Cat A<sup>8</sup> fit out.

These ceilings are then dismantled to provide access to the ceiling void to allow the tenant to make alterations to the services such as air conditioning. This often results in damage to the tiles.

There is evidence that on occasions whole ceilings are replaced for aesthetic or performance reasons, resulting in avoidable waste. These ceilings in turn will be stripped out and replaced as part of the dilapidations at the end of the tenancy.

### Challenges

- Confirm if specification practices during Cat A fit outs that result in perfectly good ceilings being replaced unnecessarily are still prevalent and engage with developers to change the practice.
- The Action Plan will look to identify the extent of the problem, and if confirmed examine ways to alter current thinking at the specification stage to design for resource efficiency.

### Next Steps

	Milestones	Action	Key Partners
<b>1</b>	Mid 2012	Establish extent of the problem, initially by consulting industry	AIS/CSP
<b>2</b>	Mid 2012	Collect information about the extent and cost of the practice, and benefits financially and environmentally to change the practice	AIS/CSP
<b>3</b>	Late 2013	Engage and educate architects, developers and main contractors to explain the issues and change the practice	AIS/CSP
<b>4</b>	Late 2013	Examine other ways to alter current thinking at the specification stage, to design for resource efficiency	AIS/CSP

8. CAT A fit out: Category A standard fit out is defined as being the basic specification that a landlord or developer will offer to potential tenants to indicate how an office can/will look. Typically this will include: Suspended ceilings amongst other elements (calfordseaden 2010).

## F. Improve knowledge of methods to correctly remove tiles when accessing services to minimise damage

### Overview

Where appropriate ceilings will be specified and installed so that access can be gained to the mechanical and electrical services (M&E) within the ceiling void.

Ceilings are normally installed by fully trained specialists who are familiar with the correct procedures to remove and replace ceiling tiles. There is evidence however from site visits carried out by AIS Advisory Service consultants that ceilings are being damaged by untrained staff, removing tiles to gain access to the service void above. This is causing unnecessary waste.

### Challenges

- Improve understanding amongst clients, facility managers, operatives, M&E contractors and other stakeholders who need to access services above a ceiling, of how to remove tiles correctly to minimise damage.
- To provide accessible information on the correct way to remove and replace Mineral Wool Ceiling Tiles, to prevent damage.

### Next Steps

	Milestones	Action	Key Partners
<b>1</b>	Early 2013	Develop guidance material in the form of a best practice guide to the maintenance of suspended ceilings	AIS/WRAP

## G. Publicise to specifiers the bespoke sizing services offered by manufacturers

### Overview

Some of the waste on site is generated from off-cuts and some of this waste could be avoided if specifiers engaged early with ceiling tile manufacturers and discussed bespoke sizing opportunities. Any waste produced could be recycled directly at source rather than end up in landfill.

The Action Plan will look to identify the extent of the problem and if confirmed examine ways to alter current thinking at the specification stage.

### Challenges

- To engage with specifiers early enough in the process to demonstrate the benefits where applicable of bespoke manufactured mineral wool ceiling tiles.
- Specifiers often produce generic specifications based on performance, early engagement with specifiers will be key to the success of this initiative.

### Next Steps

	Milestones	Action	Key Partners
1	Mid/late 2012	Look to identify the extent of the problem	AIS/CSP
2	Late 2012	Manufacturers to consider what actions they are proposing in 2012 to make specifiers aware of how they can reduce waste in the design process	Manufacturers
3	Early 2013	Examine ways to alter current thinking at the specification stage	AIS/CSP

## Annexes:

### Annex I

List of manufacturers of Mineral Wool Ceiling Tiles currently available in the UK with contacts details to discuss possible recycling options.

Manufacturer	AIS Member as at 2012	Identification marks	Web - Email	Minimum Quantity
<b>Armstrong World Industries Ltd</b>	✓	Since 1989 all UK product has at least Armstrong item number and date. Other plants the same from 1995. Anything older is unlikely to have identification. Armstrong is happy to help with identification of any older products	<a href="http://www.armstrong-ceilings.co.uk">www.armstrong-ceilings.co.uk</a> <a href="mailto:recycleyourceilings@armstrong.com">recycleyourceilings@armstrong.com</a>	All recycling enquiries welcomed, some restrictions may apply
<b>CEP Ceilings</b>		None	<a href="http://www.cepceilings.com">www.cepceilings.com</a> <a href="mailto:info@cepgroup.co.uk">info@cepgroup.co.uk</a>	No minimum quantity
<b>Knauf AMF Ceilings Ltd</b>	✓	Marked with AMF and a date stamp	<a href="http://www.amfceilings.co.uk">www.amfceilings.co.uk</a> <a href="mailto:recycling@amfceilings.co.uk">recycling@amfceilings.co.uk</a>	Minimum quantity 2,000m <sup>2</sup> . Refer to Knauf AMF's recycling programme document
<b>OWA (UK) Ltd</b>	✓	OWA printed on back of tile, and date stamped	<a href="http://www.owa-ceilings.co.uk">www.owa-ceilings.co.uk</a> <a href="mailto:recycle@owa-ceilings.co.uk">recycle@owa-ceilings.co.uk</a>	Minimum quantity 1,500m <sup>2</sup>
<b>Rockwool Ltd trading as Rockfon</b>	✓	Manufacturers name together with production date and time	<a href="http://www.rockfon.co.uk">www.rockfon.co.uk</a> <a href="mailto:recycle@rockfon.co.uk">recycle@rockfon.co.uk</a>	No minimum quantity. Refer to Rockfon's recycling customer returns procedure
<b>Saint-Gobain Ecophon Ltd</b>	✓	Ecophon is printed on the back of the tile, plus date and time of manufacture	<a href="http://www.ecophon.co.uk">www.ecophon.co.uk</a> <a href="mailto:sustainability@ecophon.co.uk">sustainability@ecophon.co.uk</a>	Small quantities of off-cuts may be reused. Refer to Ecophon for full details on this and end of life product recycling

REPORT 014

construction   
products association

26 Store Street  
London WC1E 7BT

t. 020 7323 3770  
f. 020 7323 0307

[www.constructionproducts.org.uk](http://www.constructionproducts.org.uk)

© 2012 Construction Products Association

Design - [www.tomcatdesign.co.uk](http://www.tomcatdesign.co.uk)