

The Carbon, Cost and Design Benefits of Adhesive-free Flooring Installation

FACILITATING FLOORING REUSE

Floor coverings installed using adhesives can be difficult to reuse or recycle on uplift due to contamination from adhesives. This can result in flooring sent for incineration or landfill, and significant rectification work to the sub-floor before the next installation.

We explore how **IOBAC Adhesive-free Flooring Installation Tabs** address this issue by enabling floor coverings to be affixed securely throughout the life of the installation, yet cleanly and easily uplifted.



These reversible fixing mechanisms give flooring a second life, vastly improving flooring circularity whilst decreasing whole-life costs and increasing design flexibility.

SUMMARY OF BENEFITS



CIRCULARITY

- Uplifted flooring is free from adhesive contamination, meaning it can be reused or more easily recycled through the manufacturer's take-back scheme
- Sustainability certification scheme credits for material efficiency and waste reduction
- Extra embodied carbon avoided through material reuse, rather than renewal



ASSET PROTECTION

- Access flooring and sub-floors left undamaged
- Zero mess, cleaning or remediation costs needed
- Reduced install, maintenance & disposal costs



DESIGN FOR DECONSTRUCTION

- Universal Fixing System - combine different flooring types and brands in one design
- Use on most commonly prepared sub-floors
- Reversible fixing enables flooring and base to be easily separated
- Easy uplift of tiles for repair and redesign

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THE PROBLEM WITH ADHESIVE INSTALLATION

Choosing a sustainable floor finish in isolation does not ensure its reuse or recyclability at the end of its life. **How the flooring has been installed has a significant effect on circularity.**

Traditional adhesive-based installation methods such as wet adhesives and tackifiers can contaminate the backing of the floor covering, making reuse difficult.

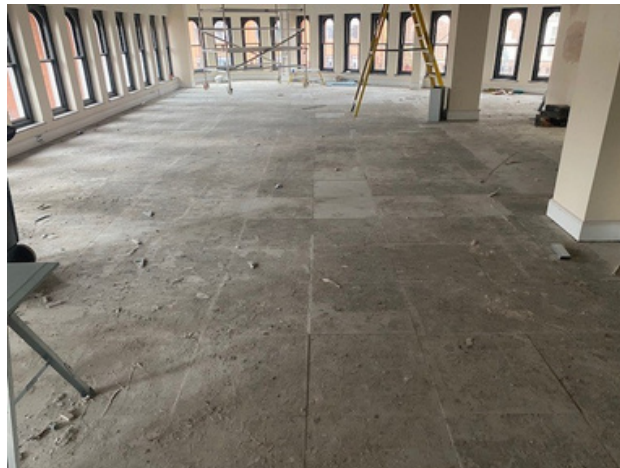
And on uplift, the sub-floor is often contaminated with adhesive and flooring material, and needs intensive cleaning and remediation.

Remediation of Metal access flooring

Detackifying fluids are often used to remove old flooring adhesive.

This intensive process either requires panels to be taken away for off-site treatment (incurring carbon costs).

Alternatively, careful programming into the on-site fit-out scheme is needed to avoid the fluid damaging other finishes such as skirting paint.



Contaminated raised metal access flooring after uplifting flooring installed using adhesive



Remains of old floor covering backing stuck to sub-floor

Remediation of Concrete Sub-Floors

Removing old flooring adhesive from concrete sub-floors is messy, expensive and carbon intensive.

It's typically done using grinding machines that generate a significant amount of dust, followed by applying a layer of cementitious screed. This method presents respiratory hazards to health to the contractor, requiring risk assessment and potential provision of PPE.

Given that concrete production contributes 8% of global annual carbon emissions, using additional cement-based products such as screed to rectify adhesive contamination is really not a sustainable approach.



Adhesive contamination of concrete sub-floors

All the issues above can be avoided with adhesive-free installation.

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A BETTER WAY FOR FLOORING INSTALLATION

In contrast, specifying the use of reversible fixing mechanisms such as IOBAC Adhesive-free Flooring Installation Tabs enables the flooring to be designed for disassembly.

It can be cleanly uplifted at the end of its first life, ready to be reused elsewhere. The sub-floor is clean and immediately ready for the next installation.

These clever double-sided fixing tabs can be used to install carpet tiles, +4mm Luxury Vinyl Tiles and woven vinyl tiles on most prepared sub-floors.



Raised metal access flooring after uplifting flooring installed using IOBAC Adhesive-Free MagTabs®

ASSET PROTECTION - A WHOLE-LIFE COST COMPARISON

In the 1,000m² project example overleaf, assets worth

£75,000

(metal raised access floor and flooring)

are damaged by using **just £500 worth of adhesive!**

Repairing the damage, and disposing of the contaminated floor covering, will cost approx

£15,500

Whereas, installation using IOBAC Adhesive-free Flooring Installation Tabs keeps the sub-floor clean and ready for immediate reuse, with

ZERO

damaged assets
mess
cleaning
dilapidation costs.

The floor covering can be reused or recycled, so costs for the next install are reduced due to material reuse.

And ongoing repair and maintenance costs are also significantly reduced since specialist contractors or tools are not required. As a self-maintenance solution for clients, in-house staff can simply lift and replace damaged flooring tiles themselves.

In the whole-life cost comparison overleaf,




adhesive-free installation costs are 40% less than traditional methods.

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ASSET PROTECTION - A WHOLE-LIFE COST COMPARISON

ADHESIVE-BASED INSTALLATION




1. FIRST INSTALL

		£/SQM
FLOOR COVERING (Materials & labour)		£25
ADHESIVE		£0.50
RAISED METAL ACCESS FLOOR		£40-50
PROJECT AREA:	1,000 SQM	
INSTALLATION MATERIAL COST:	£500	
VALUE OF ASSETS: (SUB-FLOOR & FLOOR COVERING)	£75,000	

2. UPLIFT > CONTAMINATED SUB-FLOOR & FLOORING

REMEDIATION OF ACCESS FLOOR		£9-15
DISPOSAL OF CONTAMINATED FLOOR COVERING		£0.45
DAMAGED ASSET VALUE: (SUB-FLOOR & FLOOR COVERING)	£75,000	
RECTIFICATION COST:	£15,450	
RETAINED ASSET VALUE:	£25,000	




3. NEXT INSTALL > NEW MATERIALS REQUIRED

100% NEW FLOOR COVERING (Materials & labour)		£25
MORE ADHESIVE		£0.50
50% RAISED METAL ACCESS FLOOR REUSED		£25
INSTALLATION COST:	£50,500	

GRAND TOTAL **£141,450**

ADHESIVE-FREE INSTALLATION


1. FIRST INSTALL

		£/SQM
FLOOR COVERING (Materials & labour)		£25
IOBAC MAGTABS		£1
RAISED METAL ACCESS FLOOR		£40-50
PROJECT AREA:	1,000 SQM	
INSTALLATION MATERIAL COST:	£1,000	
VALUE OF ASSETS: (SUB-FLOOR & FLOOR COVERING)	£75,000	

2. UPLIFT > CLEAN, CONTAMINATION-FREE SURFACES

NO REMEDIATION OF ACCESS FLOOR		£0
DOWNCYCLING OF MAGTABS		£0.01
ZERO DAMAGED ASSETS (SUB-FLOOR & FLOOR COVERING)		
RECTIFICATION COST:	£10	
RETAINED ASSET VALUE:	£75,000	

3. NEXT INSTALL > MATERIAL REUSE

70% FLOOR COVERING REUSED		£7.50
IOBAC MAGTABS		£1
100% RAISED METAL ACCESS FLOOR REUSED		£0
INSTALLATION COST:	£8,500	

£84,510

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EMBODIED CARBON REDUCTION & CIRCULARITY

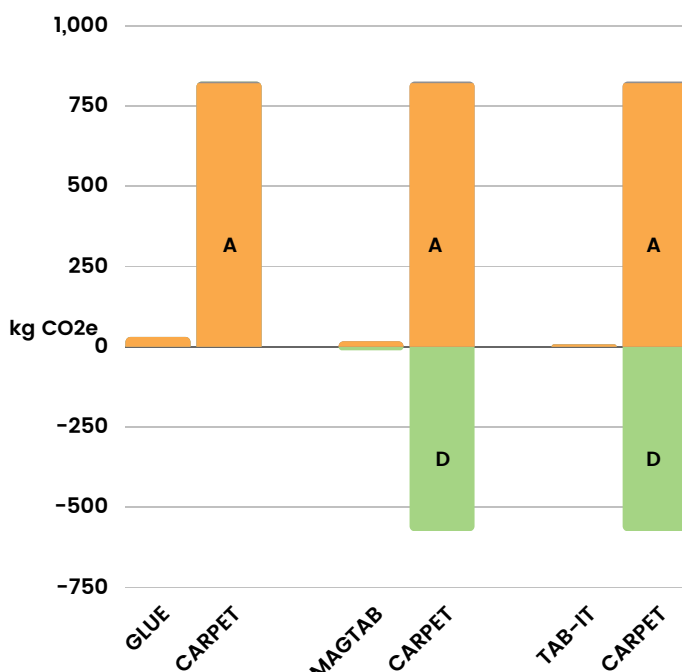
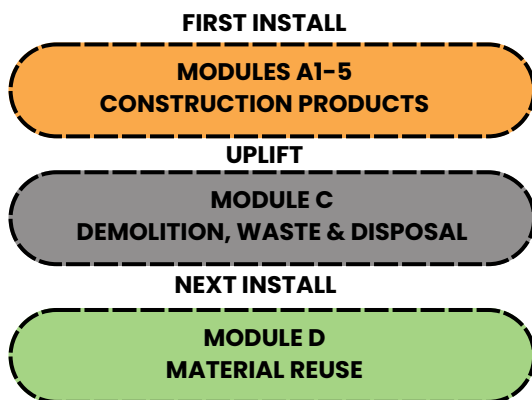
As a reversible fixing mechanism, IOBAC Tabs enable floor coverings to be cleanly, quickly and easily uplifted and reused, extending their useful material life and keeping materials at their highest value.

This reuse avoids any additional embodied carbon associated with new flooring. With average replacement cycles of carpet tiles typically five years, the usable life of the product is extended.

INSTALLATION METHODS COMPARED

Independent whole-life embodied carbon modelling* compared the carbon footprint of carpet adhesive vs IOBAC MagTabs® and IOBAC Tab-It® across modules A-D, and demonstrated that IOBAC Tabs represent up to 80% carbon saving vs the adhesive alternative.

Significant carbon savings can be made in Module D since MagTabs can be reused.



CARBON SAVINGS VIA FLOORING REUSE

Adhesive-free installation also attracts carbon savings in Module D for the floor covering e.g. carpet tiles.

It facilitates an estimated 70% flooring reuse rate through the manufacturer's take-back scheme.

*Source calculations provided by Perkins&Will for 100 sqm area
© IOBAC, Perkins&Will 2023

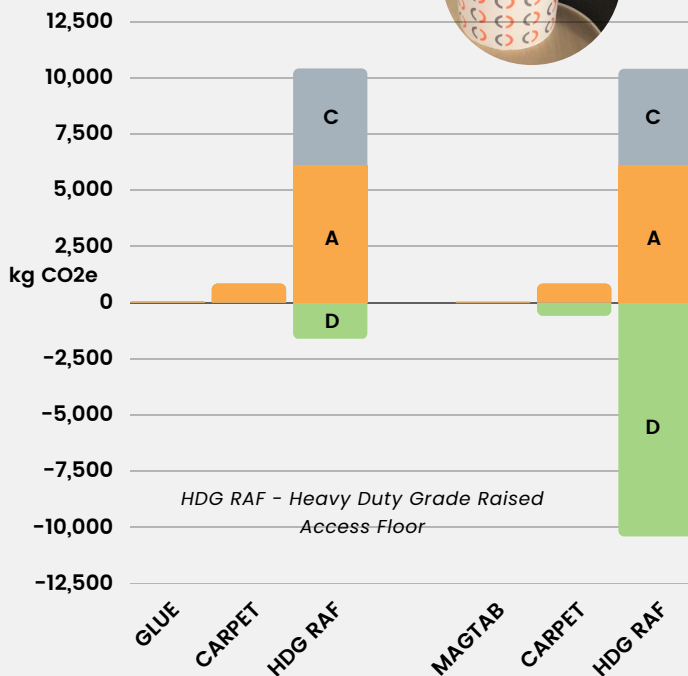
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EMBODIED CARBON REDUCTION & CIRCULARITY

And when considering the total flooring system, IOBAC Tabs enable preservation of the sub-floor for future reuse, again attracting carbon savings in Module D.

CARPET TILE INSTALLATION ON RAISED METAL ACCESS FLOORING

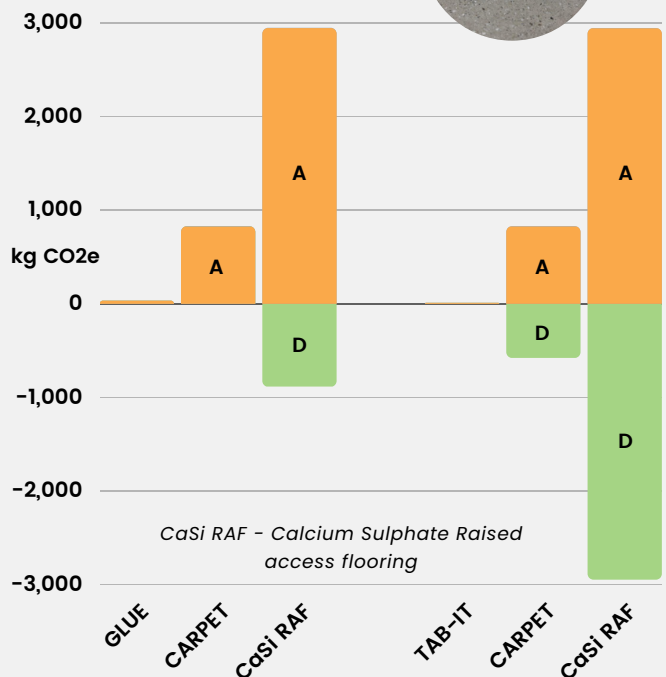
ADHESIVE vs IOBAC MAGTABS



HDG RAF - Heavy Duty Grade Raised Access Floor

CARPET TILE INSTALLATION ON NON-METAL ACCESS FLOORING

ADHESIVE vs IOBAC TAB-IT



CaSi RAF - Calcium Sulphate Raised access flooring

Sustainability certification schemes such as BREEAM recognise this contribution to embodied carbon saving with credits awarded for material efficiency, reuse and waste reduction.

Wst 01: Waste Management

Up to 7 credits for reduction of waste e.g. for used carpet tiles



- 3 points for on-site reuse of original carpet tiles
- 2 points for off-site reuse on other projects
- 1 point for direct recycling via a manufacturer

*Source calculations provided by Perkins&Will for 100 sqm area © IOBAC, Perkins&Will 2023

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MATERIAL EFFICIENCY

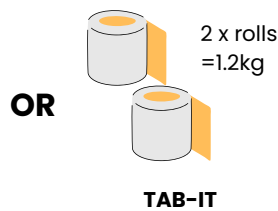
Adhesive and friction-based backings require 100% coverage of the floor covering and sub-floor.

In contrast, IOBAC Tabs are placed at the corners of flooring tiles, representing only 4% coverage, and offering material efficiency savings.



Made in the UK, IOBAC Tabs are very lightweight vs adhesives which are typically supplied in plastic containers which need to be disposed of.

A 50sqm project would require less mass, and significantly reduced carbon and costs in the transport and disposal process.



= 76%
less mass

Unlike friction-based adhesive-free coatings, IOBAC MagTabs can be wipe-cleaned for when multiple trades create a dusty environment, and reused up to 10x without loss of performance. At end of life, they can be downcycled.

HEALTH AND WELLBEING

Using IOBAC Tabs removes all VOCs related to adhesives and sealants traditionally used in the flooring installation process. All IOBAC products are 100% solid adhesive or contain plant-based resin

Indoor Air Quality is improved for both flooring contractors and building occupants, contributing towards the WELL certification goal for clean indoor air.

Installation is quick and odour-free with no drying time required. Flooring can be trafficked immediately, minimising disruption to building operations. Subsequent uplift is clean and contamination-free, meaning harmful cleaning and removal processes are not required.

Use of adhesive-free installation therefore enables safer site operations during both install and refit for contractors and occupants.

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DESIGN FOR DECONSTRUCTION

IOBAC Tabs are used for installation of carpet tile, +4mm Luxury Vinyl Tile and woven vinyl tiles onto all common prepared sub-floors. They are a universal fixing system meaning adhesive-free design is not limited to a particular flooring type or brand.

Reversible fixing enables the flooring and sub-floor to be easily separated into layers for easy uplift of tiles for repair and flexible redesigns. So flooring is no longer permanently fixed, making designs easy to deconstruct and repurpose.

Designers can combine different flooring types, be creative with intricate designs, switch designs quickly and easily repurpose and demarcate spaces, all whilst knowing disassembly will be easy and sustainable, and flooring materials need not be wasted.



We are proven with leading floor covering brands on approvals and/or projects:



Estimated quantity of flooring diverted from landfill to date using IOBAC Tabs:

200,000 sqm

600 tonnes

CLICK FOR MORE INFORMATION



IOBAC MagTabs
Product Information
(for use on metal raised access floors)



IOBAC Tab-It
Product Information
(for use on non-metal raised access flooring, concrete, wood, ceramic or vinyl sub-floors)



Adhesive-free
Case Studies



Online CPD -
Specifiers Guide to
Adhesive-Free Flooring