



ADFIL
Construction Fibres



Adfil Fibres Information



Scan here for additional information

UK Office: Adfil Ltd 6th Floor, 9 Appold Street,
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UK Customer Services & Orders

Tel: +44 (0)1482 274777 or E-mail: Orders@adfil.com

Reinforced concrete reinvented

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Zelee Belgium

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www.adfil.com



DURUS® EasyFinish

MACRO SYNTHETIC FIBRES



Designers and contractors around the globe appreciate the advantages of macro synthetic fibres over steel mesh for concrete reinforcement. Durus EasyFinish has been developed to facilitate effective post crack residual flexural strength, crack control whilst allowing a high quality surface finish and is suitable for use in all concrete mixes for the most demanding applications.

Advantages & Benefits

Durus® EasyFinish revolutionises reinforcement in concrete:

- **Cost effective reinforced concrete**
- **Faster construction**
- **Easy & safe to use**
- **Proven performance**
- **High quality concrete surface finish**
- **Replaces steel mesh**

Finishing Tests

The finishability of **Durus® EasyFinish** has been tested in different applications, including flooring concrete mixes. The number of fibres visible on the surface was greatly reduced confirming the performance of the product. Durus EasyFinish has also proven successful for use in self-compacting concrete and precast applications, which require fibre free external faces.

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Design Service

Durus® EasyFinish is the result of years of product development of the recognised DURUS macro fibre brand. Based on beam test data carried out at a range of dosages in accordance with EN 14651, Adfil Engineers can deliver bespoke design calculations covered by professional indemnity insurance for a wide range of projects.

General Applications

- **Industrial floors (Durus Floor)**
- **External paving (Durus Pave)**
- **NHBC house floor toppings**
- **Agricultural**
- **Marine & Coastal**
- **Ports & Docks**
- **Precast element toppings**

ADFIL® SF86

STEEL FIBRES



Adfil SF86 is a high performance cold drawn hook end steel fibre that has been tested and accepted by the NHBC via third party testing. This product is certified for use in the UK construction market.

Advantages & Benefits

- **Glued for ease of mixing**
- **Reduced installation time**
- **High tensile strength**
- **Proven in SCC concrete**
- **Proven performance**
- **Replacement for structural steel reinforcement**

Tests

Adfil SF86 has been tested in independent accredited laboratories to meet stringent criteria for use in the UK housing market and NHBC accepted. This product has also had extensive BS EN 14651 beam testing carried out to ensure that when used in structural applications, it will achieve the required post crack residual flexural strength.

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Engineering

Adfil SF86 steel fibres provide effective replacement of traditional steel bar and fabric in a range of applications.

ADFIL Design Engineers can provide a full PI insured design service for structural applications on request.

General Applications

- **Industrial 'jointless' floors**
- **Pile supported floors**
- **External paving**
- **NHBC accepted house floor structural toppings**
- **Precast element toppings**
- **Suspended Slabs**



FIBRIN® XT

MICRO SYNTHETIC MONOFILAMENT FIBRES



Adfil Fibrin XT is part of a range of monofilament fibres designed to reduce the occurrence of plastic shrinkage and plastic settlement cracking, whilst enhancing the surface properties and durability of hardened cementitious products.

Advantages & Benefits

The fibres are extremely fine single filaments and comprise of blended lengths that are not easily seen on the hardened surface.

- **Reduced Plastic Shrinkage Cracks**
- **Reduced Plastic Settlement**
- **Reduced Bleeding**
- **Reduced Water Permeability**
- **Increased Impact & Abrasion Resistance**
- **Coated with Surfactant to Improve Fibre Dispersion**
- **Improved Freeze / Thaw Resistance**
- **Alkali Resistant**
- **BBA Certified**

General Applications

- **Industrial floors**
- **External Hard Standings / Road Pavements**
- **Shotcrete/ Sprayed Concrete**
- **Sea Defence Work**
- **Pattern Imprinted Concrete**
- **Extruded Concrete**
- **Precast Concrete**
- **Water Retaining Structures**

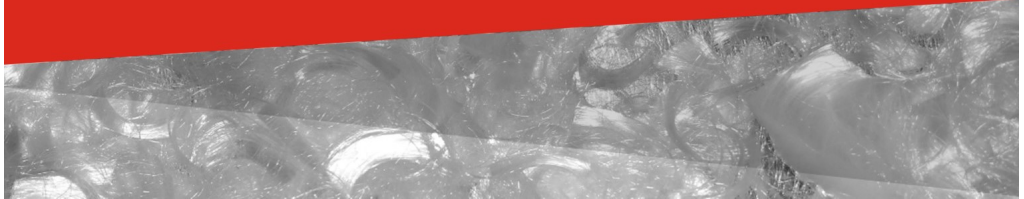
Quality Assurance

Adfil's manufacturing plants operate within a strict ISO 9001:2008 Quality Assurance System and ISO 14001 Environmental Management System.

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IGNIS®

PASSIVE FIRE PROTECTION FOR CONCRETE



Due to several tunnel fires in Europe, attention has been focused on both the performance of structures above and below ground. Passive fire resistance provides confidence to designers and operators that in the event of a fire the safety of people and integrity of the concrete structure can be safeguarded.

Underground Construction

Over the last two decades IGNIIS has been used in many tunnels, primarily to provide passive fire resistance to the concrete structure, whether this be a segmental tunnel lining, sprayed or cast in-situ concrete. This product has been proven to eliminate explosive spalling in concrete exposed to fire at such test facilities as TNO, Holland and the BRE, England.

How Adfil Polypropylene Fibres can solve the problems

Explosive spalling occurs when moisture in a concrete structure is super heated and turns to steam. Pressure builds up inside the concrete and result in an explosive failure of the exposed face.

The IGNIIS fibres will start to melt when the heat generated is approximately 160°C. When the temperature reaches 360°C the fibres vaporise to leave millions of capillaries in the concrete which allow the steam to escape.

Solution

The dosage of IGNIIS fibre will be determined by maximum allowable spalling depth from a relevant fire curve. This is used to simulate conditions for a specific application during fire testing at an appropriate test facility.

From experience 1kg/m³ of 18 micron IGNIIS micro fibres will provide effective passive fire resistance in the majority of tunnel applications.

The micro fibres will also have the added benefit of reducing the occurrence of early age plastic shrinkage cracking.

Features & Benefits

- **Reduced explosive spalling**
- **Reduced plastic shrinkage cracking.**

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FIBRIN[®] XT ULTRA

MICRO SYNTHETIC MONOFILAMENT FIBRES



Adfil Fibrin XT Ultra is part of a range of monofilament fibres designed to reduce the occurrence of plastic shrinkage and plastic settlement cracking, whilst enhancing the surface properties and durability of hardened cementitious products.

Advantages & Benefits

The fibres are extremely fine, single filaments and comprise of blended lengths that are not easily seen on the hardened surface.

- **Reduced Plastic Shrinkage Cracks**
- **Reduced Plastic Settlement**
- **Reduced Bleeding**
- **Reduced Water Permeability**
- **Increased Impact & Abrasion Resistance**
- **Coated with Surfactant to Improve Fibre Dispersion**
- **Improved Freeze / Thaw Resistance**
- **Alkali Resistant**

General Applications

- **Industrial floors**
- **External Hard Standings / Road Pavements**
- **Shotcrete/ Sprayed Concrete**
- **Sea Defence Work**
- **Pattern Imprinted Concrete**
- **Extruded Concrete**
- **Precast Concrete**
- **Water Retaining Structures**

Quality Assurance

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FIBRIN[®] PC12

MICRO SYNTHETIC MONOFILAMENT FIBRES



Fibrin PC12 has been specifically developed so that it can be added to self-compacting concretes and screeds without adversely affecting the workability.

Properties

Fibrin PC12 fibres are fine single monofilaments which are coated with a surfactant to improve the initial dispersion within the cementitious matrix. The result is an improvement in cohesion, improving the rheology of the concrete mix.

General Applications

- **Internal Floors**
- **Self-Compacting Concrete**
- **Self-Levelling Screeds**
- **Precast Elements**

Features & Benefits

- **Workability / Flow are not affected**
- **Reduces Plastic Shrinkage Cracks**
- **Reduces Plastic Settlement Cracking**
- **Reduces Bleed**
- **Increased Abrasion Resistance**
- **Increased Impact Resistance**

Mixing

The fibres should ideally be added at the batching plant, although in some instances this may not be possible and if mixing in a dry batch plant the fibres should be the first constituent, along with one third of the mixing water. This is at one bag per cubic metre of concrete solution.

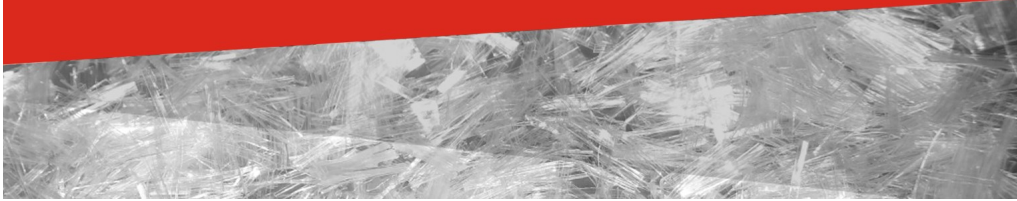
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FIBRIN® 660F

FIBRILLATED SYNTHETIC FIBRES



Fibrin 660F is a fibrillated micro fibre that reduces the occurrence of plastic shrinkage cracking and plastic settlement whilst enhancing the surface properties and the durability of the hardened cementitious products.

Advantages & Benefits

The fibres are cut to lengths of 6mm and have a nominal thickness of 50 microns. The fibres are coated with surfactant to improve dispersion and bond.

- **Reduced Plastic Shrinkage Cracks**
- **Reduced Plastic Settlement**
- **Reduced Bleeding**
- **Increased Impact Resistance**
- **Increased Abrasion Resistance**
- **Versatile in wet and semi dry concrete**

Quality Assurance

Adfil's manufacturing plants operate within a strict ISO 9001:2008 Quality Assurance System and ISO 14001 Environmental Management System.

Development Service

Adfil offers assistance to develop your products with fibrillated 660F fibres to give increased service life to your concrete and concrete products. Fibrillated fibres are versatile and can be used in both wet and semi dry concrete types, giving you more scope to improve your products and projects.

General Applications

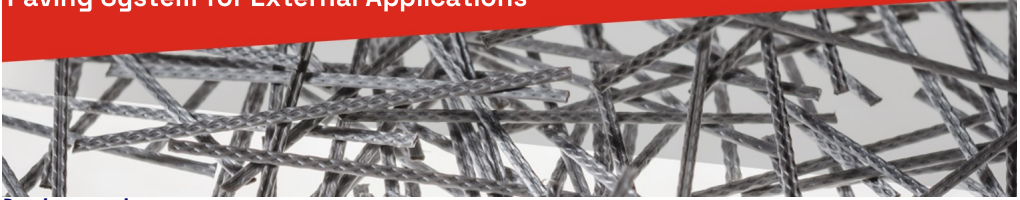
- **Mortar / Render**
- **Precast Concrete**
- **Sand & Cement Screeds**
- **Shotcrete / Gunite**
- **Repair Materials**

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DURUS® PAVE

Paving System for External Applications



Background

Adfil Construction Fibres have developed a proven system of synthetic macro fibre reinforced concrete for use in external areas, replacing the need for traditional steel mesh. **DURUS PAVE** uses **2.5Kg m³** of **Durus® EasyFinish** Polypropylene Macro Fibre ready mixed into a suitable grade of concrete to ensure consistent and reliable performance for the Customer every time.

Application Areas

DURUS PAVE can be used in a wide variety of external applications:

- External ground supported slabs for pavements, yards and hard standings
- Farmyards and Agricultural roadways
- Car parks
- Domestic driveways



Direct discharge into formwork will reduce construction time



Large areas can be poured without having to negotiate in-situ steel mesh

The Key Features & Benefits

DURUS PAVE will give the following benefits when compared to traditional steel mesh reinforcement construction:

- **Ease of construction and reduced construction time**
- **The risk of reinforcement being placed incorrectly is eliminated as it is contained within the delivered concrete, at the correct dosage to ensure the required performance**
- **Elimination of significant Health & Safety hazards associated with the handling, cutting and fixing of steel mesh reinforcement**
- **A significant reduction in embedded carbon (60%) when compared to steel mesh construction.**
- **Can provide an overall cost saving compared to traditional construction methods.**

Installation

DURUS PAVE can be placed using conventional techniques such as direct discharge, skip or pump. There are no specialist handling requirements. To ensure the optimum performance of the end product, best practice compaction, finishing and curing techniques should be observed. It is strongly recommended that a curing membrane be applied to the concrete surface immediately after finishing to control moisture and ensure the concrete reaches its required strength specification.

*use of information see page 58-ENG-DURUSPave-05/2022UK statement

DURUS® PAVE

Paving System for External Applications



Embedded Carbon Savings

DURUS PAVE can be used in a wide variety of external applications. Using **DURUS PAVE** can result in significant carbon savings when compared to traditional steel mesh reinforcement.

The following table shows typical carbon savings using fibres compared to traditional steel mesh

Solution	Traditional Steel Mesh Reinforcement Type			
	A142	A193	A252	A393
DURUS PAVE 130	23%	43%	57%	72%
DURUS PAVE 160	5%	30%	47%	66%
DURUS PAVE 190		17%	36%	57%

Table showing carbon savings compared to traditional mesh types using **2.5Kg m³ of Durus® EasyFinish**

Technical Information

DURUS PAVE can be specified and installed based upon the following load and construction recommendations, complying with the stated design assumptions noted below:

Solution	Minimum Slab Thickness (mm)	Maximum Traffic Loadings	Maximum Joint Spacing (m)
DURUS PAVE 130	130	LGV / Car 3.5T 2 Axles	6
DURUS PAVE 160	160	HGV 40T 5 Axles	6
DURUS PAVE 190	190	HGV / Trailer 44T 6 Axles	6

DESIGN ASSUMPTIONS: Concrete grade C32/40; **2.5Kg m³ of Durus® EasyFinish**; Minimum sub-grade CBR = 5%; LGV/HGV data from UK Department of Transport 2003; For loadings outside these parameters contact **Adfil** for specialist advice

Joint recommendations can be obtained via the full paving guide

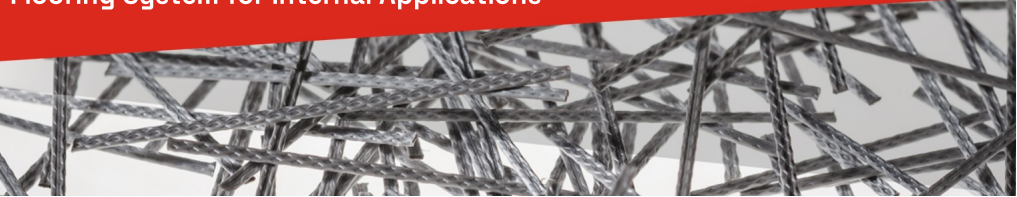
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DURUS® FLOOR

Flooring System for Internal Applications



Background

Adfil Construction Fibres have developed a proven system of synthetic macro fibre reinforced concrete for use in internal areas, replacing the need for traditional steel mesh. **DURUS FLOOR** uses **2.5Kg m³** of **Durus® EasyFinish** Polypropylene Macro Fibre ready mixed into a designated grade of concrete to ensure consistent and reliable performance for the customer every time.

Application Areas

DURUS FLOOR can be used in a wide variety of industrial and domestic applications:

- General industrial flooring
- Workshops
- Agricultural buildings
- Domestic floors
- Warehouses

The Key Features & Benefits

DURUS FLOOR will give the following benefits when compared to traditional steel mesh reinforcement construction:

- Ease of construction and reduced construction time
- The risk of reinforcement being placed incorrectly is eliminated as it is contained within the delivered concrete, at the correct dosage to ensure the required performance
- Elimination of significant Health & Safety hazards associated with the handling, cutting and fixing of steel mesh reinforcement
- A significant reduction in embedded carbon (60%) when compared to steel mesh construction
- Can provide an overall cost saving compared to traditional construction methods



DURUS Floor can be used in a wide variety of Internal Applications



A quality power float finish is easily achieved with the **DURUS Floor** system

Installation

DURUS FLOOR can be placed using conventional techniques such as direct discharge, skip or pump. There are no specialist handling requirements. To ensure the optimum performance of the end product, best practice compaction, finishing and curing techniques should be observed. It is strongly recommended that a curing membrane be applied to the concrete surface immediately after finishing to control moisture and ensure the concrete reaches its required strength specification.

*use of information see page 58-ENG-DURUSFloor-05/2022UK statement

DURUS® FLOOR

Flooring System for Internal Applications



Embedded Carbon Savings

DURUS Floor can be used in a wide variety of internal applications. Using **DURUS Floor** can result in significant carbon savings when compared to traditional steel mesh reinforcement.

The following table shows typical carbon savings using fibres compared to traditional steel mesh

Solution	Traditional Steel Mesh Reinforcement Type			
	A142	A193	A252	A393
DURUS FLOOR 130	23%	43%	57%	72%
DURUS FLOOR 160	5%	30%	47%	66%
DURUS FLOOR 190		17%	36%	57%

Table showing carbon savings compared to traditional mesh types using **2.5Kg m³ of Durus® EasyFinish**

Technical Information

DURUS FLOOR can be specified and installed based upon the following load and construction recommendations, complying with the stated design assumptions noted below:

Solution	Minimum Slab Thickness (mm)	Maximum Point Load (T)	Maximum Fork-lift Capacity (T)	Maximum Wall Load (T)	Maximum Joint Spacing (m)
DURUS FLOOR 130	130	2	2	2	6
DURUS FLOOR 160	160	3	3	3	6
DURUS FLOOR 190	190	4	4	4	6

DESIGN ASSUMPTIONS: Concrete grade C32/40; **2.5Kg m³ of Durus® EasyFinish**; Minimum sub-grade CBR = 5%; LGV/JGV data from UK Department of Transport 2003; For loadings outside these parameters contact **Adfil** for specialist advice

Joint recommendations can be obtained via the full flooring guide

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DURUS® PAVE & FLOOR

Placing & Finishing Fibre Concrete



With this document we want to offer the simple guidelines that can lead to a fibre free surface. Exposed fibres are your assurance of a properly distributed three-dimensional reinforcement before the concrete is finished. Any fibres that appear on the surface will quickly wear off under light traffic or degrade due to UV radiation.

Concrete mix

Creating the perfect finish for a fibre reinforced concrete floor starts with optimising the concrete mix design. Concrete mix should be supplied by a certified QSRMC Ready Mix Concrete Supplier, with supporting batch records to demonstrate required compressive strength, minimum cement content, maximum water cement ratio.

By increasing the amount of fine aggregate (0-4mm) in concrete the fibre-concrete matrix will have a better grip on the fibre, more mortar will hold the fibre in place once pushed under the surface. We advise to use a concrete mix design which contains at least 45% of fine aggregate for slump concrete. For concrete which will be power floated we advise a minimum of 47.5% of fine aggregate and a minimum of 350kg of cement. This ensures sufficient fat is available after placement and compaction to ensure fibre suppression below the fresh concrete surface. Typically self-compacting concrete will contain more fines and paste, so the mix design does not need to be changed.

Consistence should be suitable to allow pumping if necessary, generally S3 – S4, confirmed by the concrete supplier. This should be confirmed by appropriate consistence testing by an appointed, qualified Technician, using standard test apparatus, complying to the relevant BS EN Test Standard. If excessive bleed is evident, the mix should be rejected and the concrete supplier notified accordingly. If consistence is not within required tolerance, the mix should also be rejected. Under no circumstances should water be added to the concrete mixer drum under instruction from the Contractor.

Mixing

DURUS Macro Fibres should be added to the concrete during batching in accordance with recommended mixing guidance. Mix trials should be carried out to ensure the procedure followed results in consistent fibre dispersion without balling, at the specified dosage. Preferably this should be determined from a design provided by ADFIL Engineers.

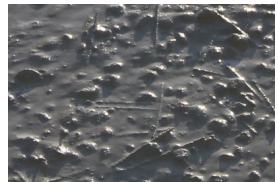
Installation

Upon discharge, the fresh DURUS reinforced concrete, should be placed in situ without segregation. This may be via pumping or direct discharge in to formwork. This may result in the propagation of fibres to the concrete surface by capillary action which will lead to surface fibres interfering with power floating operations.

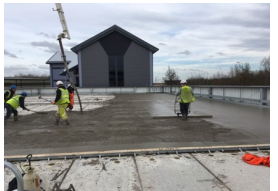
Preferably a laser screed should be used to complete level and compaction, but a portable mechanical screed (magic screed) is also suitable. Full compaction will allow sufficient paste (Fat) to be brought to the surface of the fresh concrete in order to suppress the fibres below the surface and also align fibres in the top area of the concrete to be aligned horizontally below the surface. This is critical if a high quality powerfloat finish is to be achieved.



Readymix Supplier



Durus Macro fibre concrete mix



Pouring concrete



Laser screed



DURUS® PAVE & FLOOR

Placing & Finishing Fibre Concrete



Timing

Flowing concrete

Flowing concrete should be dappled as soon as it is practically possible. Be careful NOT to use a round skip for this type of concrete as this will push the fibres back up at the end of the skip. Using a flat skip helps to push down the fibres.

Slump concrete

Once the concrete has been poured, the timing of finishing is very important. The concrete needs to have a certain resistance in order to keep a fibre down. The easiest way to check this is to manually push down a fibre and see whether it stays under. If it does, the concrete can be finished.

Ways of finishing

Before finishing, dynamic compaction using appropriate site equipment, like a twin beam compacting screeder or razor back, should be undertaken to ensure full compaction of the slab or topping to full depth, without over compaction which could result in segregation and excessive bleed. Poker vibrators should not be used as this has a tendency to pull fibres vertically out of the surface when pulling the vibrator in and out of the concrete. Hand screed bar, magic screeder can be used as if it were a conventional reinforced concrete.

Skip float

A skip float is to be used to close the surface and to correct any small surface irregularities left by the compacting beam. This should occur soon after compaction when some of the surface moisture has evaporated and the concrete has started to stiffen. Each pass should overlap the previous one by about 50mm. The fibres in the surface will be pushed down due to the skip float movement. This will create a nice fibre free surface.

When a rougher surface need to be applied to provide more friction a brushed finish can be applied. Fibres in the surface will be aligned in the brush direction and will be less visible.

Rollerbug

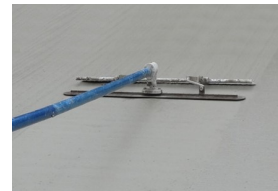
We advise to use a rollerbug as it will provide a more durable concrete finish as it does not open up the protecting upper concrete paste. The rollerbug will also provide the perfect preparation for powerfloating



Use a Dapple to finish SCC



Vibro Float



Skip Float



Rollerbug

DURUS® PAVE & FLOOR

Placing & Finishing Fibre Concrete



Powerfloating

With power floating it is down the quality and skill of the workforce laying the concrete, and the quality of the concrete delivered by your supplier. The only rule we ask the readymixers to adhere to is to ensure there is 45 - 50% fines in the concrete so that there is enough concrete paste (fat) on the top surface.

Also to ensure the correct agitating tool is used for example a concrete poker or magic screeder or vibrating screed bar. Nothing really more that they should use for normal concrete. The correct tools for agitation is to ensure there is around 3mm of fat on top of the area that you are going to power float. So when you initially float it the fibres get pushed down.

The fibres in the surface should be pushed down with a skipfloat or a rollerbug prior to powerfloating the surface. This will avoid fibres sticking out of the surface after powerfloating. Typical site practice is to test the concrete's readiness for power floating by measuring the indentation of the operator's foot: if the indentation is 2mm or less generally the slab is then power floated. It must be noted that the ambient temperature and the concrete mix design may affect power-floating times.

Beware not to set the knives of the powerfloat to deep in the concrete as this might mix the thin upper layer with fibres again. The Contractor should ensure that powerfloat finishing is not carried out prematurely as this will remove the closed surface fat required to ensure a high quality fibre free finished surface.

Powerfloating operations should only be carried out by competent and experienced operatives as appointed under the responsibility of the Contractor. The surface should not be over panned as this could lead to delamination and dusting of the concrete surface when trafficked.

Optionally 3-5kg of quartz sand can be added to every square meter of the surface. It is applied to the concrete when it is at the panning stage prior to powerfloating. This will add a layer of 2mm with hard wearing characteristics and increased impact resistance. It will also help to push any remaining fibre down before powerfloating.

Laser guided screed

No actual extra care needs to be taken into account. When the floor is powerfloated after levelling with the laser, please take the above mentioned advise into account.



Power floating concrete



Laser guided screed



Too wet to pan



Ready to start Panning



DURUS® PAVE & FLOOR

Placing & Finishing Fibre Concrete



Curing the concrete

All concrete must be cured. Curing is the process of ensuring that there is sufficient water present to allow hydration of the cement throughout its life. For all categories of slabs, it is essential that all normal good curing procedures be strictly followed.

We strongly advise to cure the concrete as soon as is practically possible using a proprietary spray applied membrane forming compound. This will avoid water evaporating out of the concrete surface too quickly.

Saw cut joint installation

Saw cut joints should be made within 24hrs of powerfloat finishing. 1/3 of slab / topping depth, or 50mm, whichever is greater. This is critical to ensure uncontrolled cracking does not occur due to shrinkage during final set.

Finishing Trials

Should you be in any doubt about your method of finishing fibre reinforced concrete then we advise that you arrange trial mixes with your readymix supplier. The Adfil technical team will be more than happy attending to offer first hand specialist advice.



Curing Concrete



Applying saw cuts within 24 hours



Trail bed being poured



DURUS[®] PAVE & FLOOR

Additional Reinforcement & Recommended

Joint details



Guideline for Joint Installation and Supplementary Reinforcement in DURUS[®] Fibre Reinforced Concrete Slabs

Joint Layout Considerations:

In an ideal joint layout plan, the objective is to minimize the risk of cracks occurring, this is achieved by a combination of the following considerations:

- Maintaining bay aspect ratio to a maximum of 1:1.5, preferably having square bays.
- Avoiding re-entrant corners.
- Avoiding bay shapes with acute angles at corners.
- Avoiding restraint to shrinkage with the use of isolation details around fixed piits, such as service access.
- Avoiding point loads at joints.
- Limiting the distance between saw cut joints to a maximum of 6m.
- Limiting dimensions to a maximum of 35m for jointless bays and maximum of 50m for jointed bays, unless using long strip and wide bay construction.

Saw Cut Joints:

- Saw cut joints induce a plane of weakness in the concrete to dictate where cracking
- Saw cut joints are usually 3-4mm wide.
- They should be cut as soon as practicable after placing the concrete, ensuring it is strong enough to avoid any damage during the sawing process.

(Normally 24hrs after placement and finishing)

- They are cut at between 25-30% of slab depth.



DURUS® PAVE & FLOOR

Additional Reinforcement & Recommended
Joint details



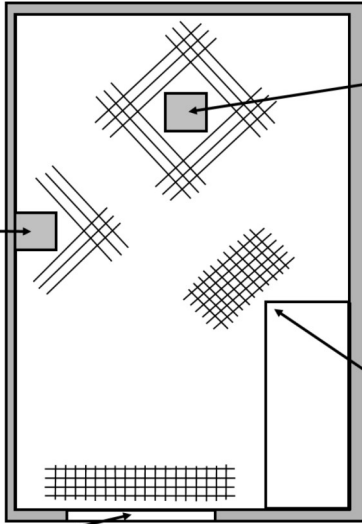
Additional Supplementary Reinforcement

The following is a guide only when using Adfil Macro Fibre reinforcement in ground bearing slab applications. It is important to ensure the correct measures are taken to avoid defects around services, re-entrants, columns & other details as per best practice.

Columns:

Manholes, Services

3 Bars Ø 8mm in both directions
50mm spacing, placed at 1/3 slab depth
Bars must cross each other



Columns:

Manholes, Services

3 Bars Ø 8mm in both directions
50mm spacing, placed at 1/3 slab depth
Bars must cross each other

Corner Walls:

1 Piece A142 welded steel mesh
placed at 1/3 slab depth
AT LEAST 35mm from edge

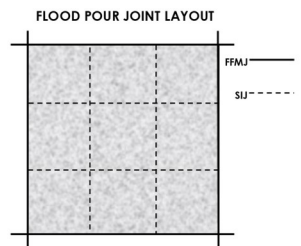
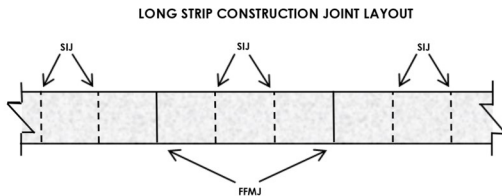
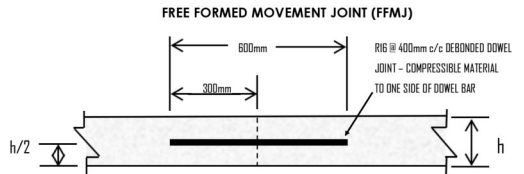
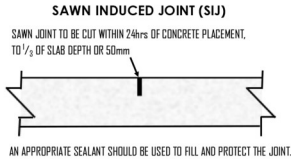
Door Openings:

1 Piece A142 welded steel mesh
placed at 1/3 slab depth
Must be 1m+ longer than opening on both sides

Free Movement of the Slab:

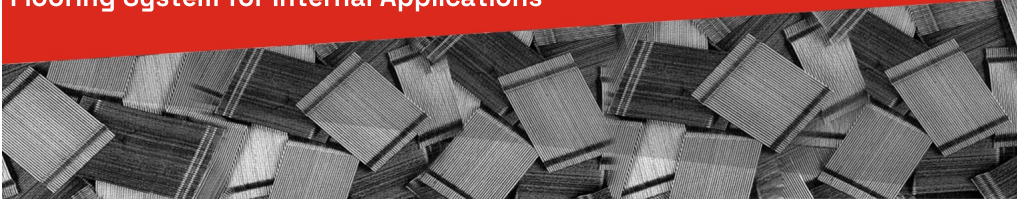
Use 20mm EPS plate around all edges and corners.
There should be no bars between floor & foundations

Recommended joint details



Adfil® SF FLOOR

Flooring System for Internal Applications



Background

Adfil Construction Fibres have a proven system of Steel fibre reinforced concrete for use in internal areas, replacing the need for traditional steel mesh fabric. **Adfil® SF Floor** uses Adfil SF86 steel fibre ready mixed into a designated grade of concrete to ensure consistent and reliable performance for the customer every time.

Application Areas

Adfil® SF Floor can be used in a wide variety of industrial and domestic applications:

- General industrial flooring
- Workshops
- Agricultural buildings
- Domestic floors
- Warehouses

The Key Features & Benefits

Adfil® SF Floor will give the following benefits when compared to traditional steel mesh reinforcement construction:

- Ease of construction and reduced construction time
- The risk of reinforcement being placed incorrectly is eliminated as it is contained within the delivered concrete, at the correct dosage to ensure the required performance
- Elimination of significant Health & Safety hazards associated with the handling, cutting and fixing of steel mesh reinforcement
- A significant reduction in embedded carbon (60%) when compared to steel mesh construction
- Can provide an overall cost saving compared to traditional construction methods



Adfil® SF Floor can be used in a wide variety of Internal Applications



A quality power float finish is easily achieved with the **Adfil® SF Floor** system

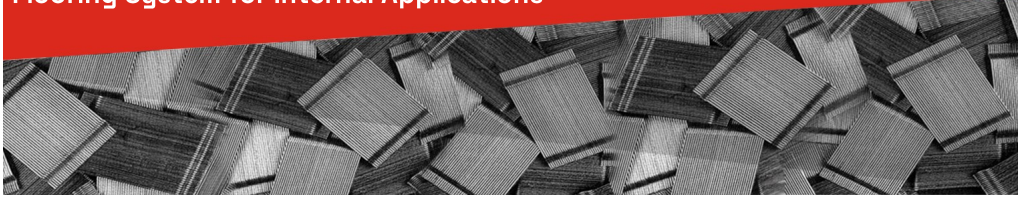
Installation

Adfil® SF Floor can be placed using conventional techniques such as direct discharge, skip or pump. There are no specialist handling requirements. To ensure the optimum performance of the end product, best practice compaction, finishing and curing techniques should be observed. It is strongly recommended that a curing membrane be applied to the concrete surface immediately after finishing to control moisture and ensure the concrete reaches its required strength specification.

*use of information see page SB-ENG-Adfil® SF Floor-05/2022UK statement

Adfil® SF FLOOR

Flooring System for Internal Applications



Cost Savings

Using **Adfil® SF Floor** can result in significant savings on the cost of traditional steel mesh reinforcement in addition to those associated with faster and easier installation.

The following table shows typical savings compared to the use of the common steel mesh types:

Solution	Traditional Steel Mesh Reinforcement Type			
	A142	A193	A252	A393
Adfil® SF Floor 130	5%	7%	12%	20%
Adfil® SF Floor 160	3%	5%	9%	14%
Adfil® SF Floor 190	1%	3%	6%	10%

Table showing indicative cost savings compared to traditional mesh types using 15Kg m³ of Adfil® SF86

Technical Information

Adfil® SF Floor can be specified and installed based upon the following load and construction recommendations, complying with the stated design assumptions noted below:

Solution	Minimum Slab Thickness (mm)	Maximum Point Load (T)	Maximum Fork-lift Capacity (T)	Maximum Wall Load (T)	Maximum Joint Spacing
Adfil® SF Floor 130	130	2	2	2	6
Adfil® SF Floor 160	160	3	3	3	6
Adfil® SF Floor 190	190	4	4	4	6

DESIGN ASSUMPTIONS: Concrete grade C25/30 & 15Kg m³ of Adfil® SF86 Minimum Minimum sub-grade CBR = 5%

Point load applied on base of minimum dimensions 125mm x 125mm

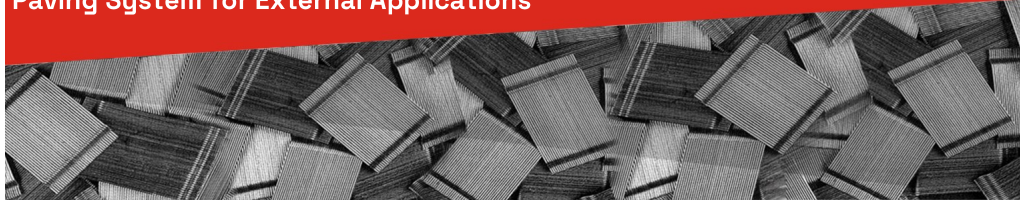
Joint recommendations can be obtained via the full flooring guide

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SB-ENG-Adfil® SF Floor-05/2022UK

Adfil® SF PAVE

Paving System for External Applications



Background

Adfil Construction Fibres have a proven system of Steel fibre reinforced concrete for use in internal areas, replacing the need for traditional steel mesh fabric. **Adfil® SF Pave** uses Adfil SF86 steel fibre ready mixed into a designated grade of concrete to ensure consistent and reliable performance for the customer every time.

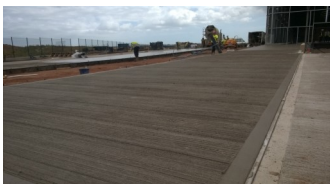
Application Areas

Adfil® SF Pave can be used in a wide variety of external applications:

- External ground supported slabs for pavements, yards and hard standings
- Farmyards and Agricultural roadways
- Car parks
- Domestic driveways



Direct discharge into formwork will reduce construction time



Large areas can be poured without having to negotiate in-situ steel mesh

The Key Features & Benefits

Adfil® SF Pave will give the following benefits when compared to traditional steel mesh reinforcement construction:

- Ease of construction and reduced construction time
- The risk of reinforcement being placed incorrectly is eliminated as it is contained within the delivered concrete, at the correct dosage to ensure the required performance
- Elimination of significant Health & Safety hazards associated with the handling, cutting and fixing of steel mesh reinforcement
- A significant reduction in embedded carbon (60%) when compared to steel mesh construction.
- Can provide an overall cost saving compared to traditional construction methods.

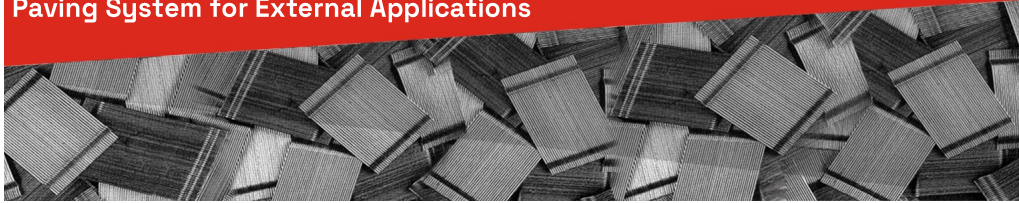
Installation

Adfil® SF Pave can be placed using conventional techniques such as direct discharge, skip or pump. There are no specialist handling requirements. To ensure the optimum performance of the end product, best practice compaction, finishing and curing techniques should be observed. It is strongly recommended that a curing membrane be applied to the concrete surface immediately after finishing to control moisture and ensure the concrete reaches its required strength specification.

*use of information see page SB-ENG-Adfil® SF Pave-05/2022UK statement

Adfil® SF PAVE

Paving System for External Applications



Cost Savings

Adfil® SF Pave can be used in a wide variety of external applications. Using **Adfil® SF Pave** can result in significant savings on the cost of traditional steel mesh reinforcement in addition to those associated with faster and easier installation.

The following table shows typical savings compared to the use of the common steel mesh types:

Solution	Traditional Steel Mesh Reinforcement Type			
	A142	A193	A252	A393
Adfil® SF Pave 130	5%	7%	12%	20%
Adfil® SF Pave 160	3%	5%	9%	14%
Adfil® SF Pave 190	1%	3%	6%	10%

Table showing indicative cost savings compared to traditional mesh types using 15Kg m³ of Adfil® SF86

Technical Information

Adfil® SF Pave can be specified and installed based upon the following load and construction recommendations, complying with the stated design assumptions noted below:

Solution	Minimum Slab Thickness (mm)	Maximum Traffic Loadings	Maximum Joint Spacing (m)
Adfil® SF Pave 130	130	LGV / Car 3.5T 2 Axles	6
Adfil® SF Pave 160	160	HGV 40T 5 Axles	6
Adfil® SF Pave 190	190	HGV / Trailer 44T 6 Axles	6

DESIGN ASSUMPTIONS: Concrete grade C32/40 & 15Kg m³ of Adfil® SF86 Minimum sub-grade CBR = 5%; LGV/HGV data from UK Department of Transport 2003; For loadings outside these parameters contact Adfil for specialist advice

Joint recommendations can be obtained via the full paving guide

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SB-ENG-Adfil® SF Pave-05/2022UK

ADFIL® SF PAVE & SF FLOOR

Placing & Finishing Fibre Concrete



With this document we want to offer the simple guidelines that can lead to a fibre free surface. Exposed fibres are your assurance of a properly distributed three-dimensional reinforcement before the concrete is finished.

Concrete mix

Creating the perfect finish for a fibre reinforced concrete floor starts with optimising the concrete mix design. Concrete mix should be supplied by a certified QSRMC Ready Mix Concrete Supplier, with supporting batch records to demonstrate required compressive strength, minimum cement content, maximum water cement ratio.

By increasing the amount of fine aggregate (0-4mm) in concrete the fibre-concrete matrix will have a better grip on the fibre, more mortar will hold the fibre in place once pushed under the surface. We advise to use a concrete mix design which contains at least 45% of fine aggregate for slump concrete. For concrete which will be power floated we advise a minimum of 47.5% of fine aggregate and a minimum of 350kg of cement. This ensures sufficient fat is available after placement and compaction to ensure fibre suppression below the fresh concrete surface. Typically self-compacting concrete will contain more fines and paste, so the mix design does not need to be changed.

Consistence should be suitable to allow pumping if necessary, generally S3 – S4, confirmed by the concrete supplier. This should be confirmed by appropriate consistence testing by an appointed, qualified Technician, using standard test apparatus, complying to the relevant BS EN Test Standard. If excessive bleed is evident, the mix should be rejected and the concrete supplier notified accordingly. If consistence is not within required tolerance, the mix should also be rejected. Under no circumstances should water be added to the concrete mixer drum under instruction from the Contractor.

Mixing

Adfil SF86 Steel Fibres should be added to the concrete during batching in accordance with recommended mixing guidance. Mix trials should be carried out to ensure the procedure followed results in consistent fibre dispersion without balling, at the specified dosage. Preferably this should be determined from a design provided by ADFIL Engineers.

Installation

Upon discharge, the fresh Adfil SF86 reinforced concrete, should be placed in situ without segregation. This may be via pumping or direct discharge in to formwork. This may result in the propagation of fibres to the concrete surface by capillary action which will lead to surface fibres interfering with power floating operations.

Preferably a laser screed should be used to complete level and compaction, but a portable mechanical screed (magic screed) is also suitable. Full compaction will allow sufficient paste (Fat) to be brought to the surface of the fresh concrete in order to suppress the fibres below the surface and also align fibres in the top area of the concrete to be aligned horizontally below the surface. This is critical if a high quality powerfloat finish is to be achieved.



Readymix Supplier



Adfil SF86 Steel fibre concrete mix



Pouring concrete



Laser screed



ADFIL® SF PAVE & SF FLOOR

Placing & Finishing Fibre Concrete



Timing

Flowing concrete

Flowing concrete should be dappled as soon as it is practically possible. Be careful NOT to use a round skip for this type of concrete as this will push the fibres back up at the end of the skip. Using a flat skip helps to push down the fibres.

Slump concrete

Once the concrete has been poured, the timing of finishing is very important. The concrete needs to have a certain resistance in order to keep a fibre down. The easiest way to check this is to manually push down a fibre and see whether it stays under. If it does, the concrete can be finished.

Ways of finishing

Before finishing, dynamic compaction using appropriate site equipment, like a twin beam compacting screeder or razor back, should be undertaken to ensure full compaction of the slab or topping to full depth, without over compaction which could result in segregation and excessive bleed. Poker vibrators should not be used as this has a tendency to pull fibres vertically out of the surface when pulling the vibrator in and out of the concrete. Hand screed bar, magic screeder can be used as if it were a conventional reinforced concrete.

Skip float

A skip float is to be used to close the surface and to correct any small surface irregularities left by the compacting beam. This should occur soon after compaction when some of the surface moisture has evaporated and the concrete has started to stiffen. Each pass should overlap the previous one by about 50mm. The fibres in the surface will be pushed down due to the skip float movement. This will create a nice fibre free surface.

When a rougher surface need to be applied to provide more friction a brushed finish can be applied. Fibres in the surface will be aligned in the brush direction and will be less visible.

Rollerbug

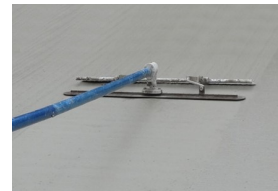
We advise to use a rollerbug as it will provide a more durable concrete finish as it does not open up the protecting upper concrete paste. The rollerbug will also provide the perfect preparation for powerfloating



**Use a Dapple to finish
SCC**



Vibro Float



Skip Float



Rollerbug

ADFIL® SF PAVE & SF FLOOR

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Laser guided screed

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Power floating concrete



Laser guided screed



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Ready to start Panning



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Curing Concrete



Applying saw cuts within 24 hours



Trail bed being poured

ADFIL® SF PAVE & SF FLOOR

Additional Reinforcement & Recommended

Joint details



Guideline for Joint Installation and Supplementary Reinforcement in ADFIL® SF86 Fibre Reinforced Concrete Slabs

Joint Layout Considerations:

In an ideal joint layout plan, the objective is to minimize the risk of cracks occurring, this is achieved by a combination of the following considerations:

- Maintaining bay aspect ratio to a maximum of 1:1.5, preferably having square bays.
- Avoiding re-entrant corners.
- Avoiding bay shapes with acute angles at corners.
- Avoiding restraint to shrinkage with the use of isolation details around fixed piits, such as service access.
- Avoiding point loads at joints.
- Limiting the distance between saw cut joints to a maximum of 6m.
- Limiting dimensions to a maximum of 35m for jointless bays and maximum of 50m for jointed bays, unless using long strip and wide bay construction.

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- Saw cut joints are usually 3-4mm wide.
- They should be cut as soon as practicable after placing the concrete, ensuring it is strong enough to avoid any damage during the sawing process.

(Normally 24hrs after placement and finishing)

- They are cut at between 25-30% of slab depth.



ADFIL® SF PAVE & SF FLOOR

Additional Reinforcement & Recommended
Joint details



Additional Supplementary Reinforcement

The following is a guide only when using Adfil SF86 Steel reinforcement in ground bearing slab applications. It is important to ensure the correct measures are taken to avoid defects around services, re-entrants, columns & other details as per best practice.

Columns,

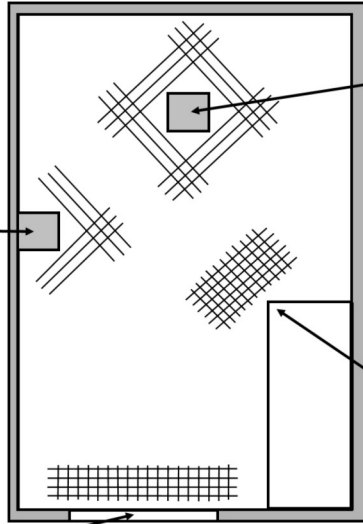
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50mm spacing, placed at $1/3$ slab depth
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Corner Walls:

1 Piece A142 welded steel mesh
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AT LEAST 35mm from edge

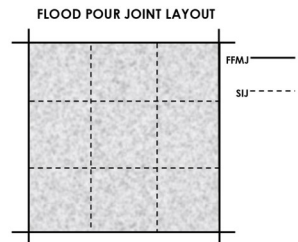
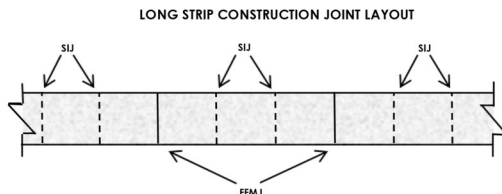
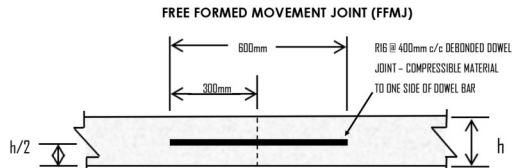
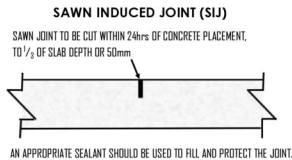
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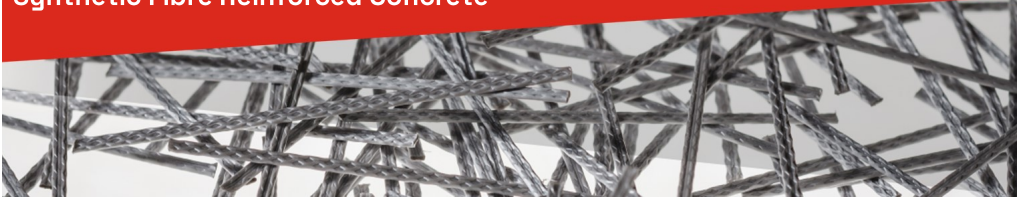
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Recommended joint details



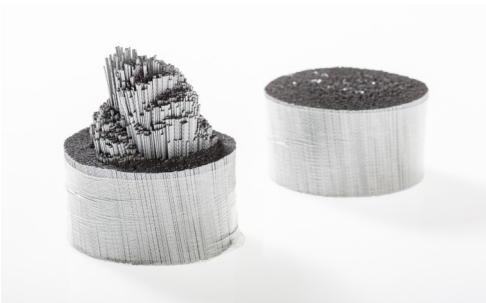
Durus® EasyFinish Applications

Synthetic Fibre Reinforced Concrete



Durus® EasyFinish is the result of years of product development by ADFIL's in-house Research, Development and Innovation Team. Revolutionary cross-sectional profile, embossment and polymer science combine to provide a high performance, user friendly product. This allows low dosages to provide optimum performance coupled with ease of mixing and high quality finishing.

Durus® EasyFinish can be used to replace steel mesh fabric for both post crack residual flexural strength in ground bearing slabs and crack control depending on the design requirements.



Design

ADFIL Design Engineers are specialists in fibre reinforced concrete design, and offer a free of charge professionally indemnified design service on a project specific basis.

Sustainability

A **Durus® EasyFinish** alternative to traditional steel mesh reinforcement also allows an embedded carbon saving of up to 60% which will significantly contribute to project sustainability targets.

Health & Safety

The elimination of the need for steel mesh, handling, cutting and fixing on-site significantly reduces health & safety hazards during installation.



Reinforced concrete reinvented



Agricultural Applications

Synthetic Fibre Reinforced Concrete



Durus® Macro Synthetic Fibres can be used in a wide range of Agricultural reinforced concrete applications to replace conventional steel mesh reinforcement.

Agricultural areas are a proven application for Macro Fibres, saving time and maintaining the required performance through correct design. The use of Macro Fibres will eliminate significant risk of damage to machine tyres and livestock injury from exposed steel reinforcement.



Tracks & Hardstandings

Grain Stores



A number of grain stores around the UK have successfully used Synthetic Macro Fibres in place of traditional steel reinforcement in the concrete floor slab. Reduced build time and ease of construction are a significant benefit, whilst ensuring the surface finish and durability of the concrete floor is maintained.



Anaerobic Digesters

Animal Sheds



Anaerobic Digester Facilities are becoming evermore common in the Agricultural sector. Animal slurry and organic waste from maize, fruit and vegetable production is stored and fermented to produce methane gas which can then be used to supplement the energy infrastructure network. Reinforced concrete pavements are at high risk of prolonged exposure to these liquids, which will attack and corrode conventional steel reinforcement.



Silage Clamps

Cattle Sheds



Ports & Dock Applications

Synthetic Fibre Reinforced Concrete



Adfil Macro & Micro Synthetic Fibre Reinforced Concrete provide significant benefits in the construction and repair of Port and Docks Facilities.

Challenges

Ports and Docks are key Logistical Hubs supporting the distribution of Cargo Worldwide. The Cargo is stored in large Steel Containers which are loaded & unloaded via Crane, Reach Stackers and specialist Handling Equipment from the docked Cargo Ships. With some containers weighing in excess of 20T and being stacked in multiple layers, it is critical that the Concrete Slab contains appropriate reinforcement to accommodate such loads otherwise this could lead to serviceability problems and temporary closure of the affected area.

Application Areas

- Crain Loading
- Storage & Handling Area's
- Access Roads
- Container Storage

Solution

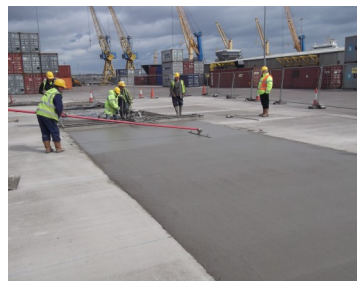
The replacement of conventional steel mesh with DURUS Synthetic Fibre will eliminate the risk of corrosion and any associated problems. Macro fibre reinforcement will allow more efficient installation as there is no requirement for handling, placement and fixing of steel mesh. This will significantly reduce construction time. The risk of steel being placed incorrectly, with inadequate cover, will not be a factor if it is replaced with DURUS Macro Fibres, which will be dispersed consistently throughout 100% of the volume of the concrete on delivery to site. This will also eliminate significant Health & Safety hazards associated with steel fixing



Container Storage



Boston Port Crane



Port of Blyth

Marine & Coastal Applications

Synthetic Fibre Reinforced Concrete



Adfil Macro & Micro Synthetic Fibres can be used in a wide range of marine and coastal reinforced concrete applications to replace conventional steel mesh.

Challenges

In marine and coastal environments, constant exposure to water, especially sea water, can cause devastating damage to concrete structures as a result of steel corrosion. This is a high energy environment created by wave action and abrasion from shingle and sand particle impacts. The concrete used in these applications must have a high durability to ensure design service life is maintained.



Peterhead Sea Wall

Application Areas

- **Sea Defences**
- **River Flood Defences**
- **Harbours & Slipways**
- **Lagoons & Reservoirs**



River Parrett

Solution

The replacement of conventional welded steel mesh with Durus synthetic macro fibre will eliminate the risk of corrosion and any associated problems. Synthetic macro fibre reinforcement will allow more efficient installation as there is no requirement for handling, placement and fixing of steel mesh. This will significantly reduce construction time.



Mamhead Slipway

Compliance

Adfil fibres are compliant with the Environment Agency's Minimum Technical Requirements (MTR) WEM Table for Fibres in Marine Concrete and CIRIA C674 Use of Concrete in Maritime Engineering.

Road & Track Applications

Synthetic Fibre Reinforced Concrete



Adfil Macro & Micro Synthetic Fibre Reinforced Concrete provide significant benefits in the construction Roads & Tracks

Challenges

Roads & Tracks usually are constructed in a continuous build method, where you will pour your concrete continuously, usually in remote area's where there isn't any existing roads to be able to deliver steel mesh reinforcement to the location it is needed. Also there is also a risk that the steel may not be placed in the correct position within the slab. There is also usually the need to be able to use the road or track as soon as possible so quick construction is key.

Application Areas

- **Farm Tracks**
- **Access Roads**
- **Port Roads**
- **Highways**

Solution

The replacement of conventional welded steel mesh with DURUS Synthetic Fibre will speed up the construction of your roads and tracks, as the concrete arrives with the reinforcement already in it, meaning that you can continually pour reinforced concrete without having to back track every time to collect & then place steel mesh. The fibres reinforce the road or track in a three dimensional matrix, meaning that there will be no misplacement of the required reinforcement . With fibre concrete you will also benefit from a better wearing surface and the service life of the road or track will be longer due to the reinforcement not being susceptible to corrosion and have an increased impact resistance.



Gaynes Farm Track



Felixstowe Port Road



Military Vehicle Access



NHBC Accepted Housing Oversight Concrete

Information for House Builders / Ready Mix / Contractors



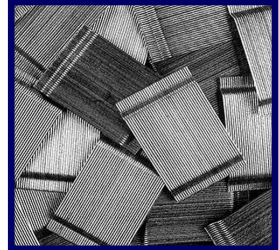
House floor systems produced by the following companies have accepted Adfil fibres on their current certificates for NHBC approved house floor toppings (BBA & KIWA)

Adfil also has its own BBA certificate which covers these systems via the Adfil Product Sheet 99 with new lower dosages

Durus®
EasyFinish
2.5kg



Adfil®
SF86
7.5kg



Durus®
S400



- Springvale
- Jablite
- Rackhams
- Litecast
- Forterra
- Styrene
- Others*

****NOTE: Always check with Adfil to ensure that the fibre product and dosage information for the specific system is correct. Information is available on the Adfil website: www.adfil.com.**

Please contact us for assistance or visit our website www.adfil.com to view our guidance films.



Adfil Product Sheet 99

Information for House Builders / Ready Mix / Contractors

Adfil Ltd
Devonshire House
60 Goswell Road
London
England
EC1M 7AD

Tel: 01482 274777
e-mail: info@adfil.com
website: www.adfil.com



Agrément Certificate

21/5891

Product Sheet 99

SUPPLEMENT TO SF86 STEEL FIBRE AND DURUS EASYFINISH FOR BEAM AND BLOCK FLOORS

The following BBA-approved beam and block floor systems are compatible for use within the scope of Product Sheet 1 (SF86 Steel Fibre) and Product Sheet 2 (Durus EasyFinish) of this Certificate, for single-family dwellings (for suspended ground floors) only:

SF86 Steel Fibre and Durus EasyFinish

Table 1 Certificates with beam and block floor systems compatible with SF86 Steel Fibre and Durus EasyFinish

BBA Certificate number/Product Sheet (PS)	Certificate title	Company name	Minimum depth of concrete topping above the services
88/2059 PS3	Jetfloor Floor System	Forterra Building Products Ltd	70 mm
07/4411 PS1	Beamshield Plus and Platinum Beamshield Plus	Springvale EPS Ltd	75 mm
06/4369 PS1	TDeck EPS Panel System	Combined Thermal Solutions	75 to 80 mm
13/5021 PS1	Stylite T Beam and Stylite T Beam Plus	Styrene Packaging & Insulation Ltd	75 mm
16/5360 PS1	TS System	Rackham Housefloors Ltd	75 mm
17/5431 PS2	Warm Beam Top Sheet System (minimum grade of EPS top sheet is 120 kPa)	S and B EPS Ltd	75 mm
20/5829 PS1	Jabilite Thermal Floor System Incorporating Structural Boards	Jabilite Limited	65 mm

The BBA has awarded this Product Sheet to Agrément Certificate 21/5891, to the company named above for SF86 Steel Fibre and Durus EasyFinish.

On behalf of the British Board of Agrément

Date of First issue: 24 December 2021

Hardy Giesler
Chief Executive Officer

The BBA is a UKAS accredited certification body – Number 213.
The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk
Readers MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.
Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

British Board of Agrément
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Adfil Product Sheet 99

Information for House Builders / Ready Mix / Contractors



A detailed description of each floor system is given in the relevant Certificate. The SF86 Steel Fibre and Durus EasyFinish fibres at dosage rates of 7.5 kg·m⁻³ and 2.5 kg·m⁻³ respectively, must be incorporated in a system which is designed, installed and used strictly in accordance with Product Sheets 1 and 2 of this Certificate and the relevant floor system Certificate.

Prior to installation, a suitably qualified and competent engineer should assess the system to ensure that the floor design and detailing is adequate to resist the applied loads. SF86 Steel Fibre and Durus EasyFinish may be used in concrete toppings in single-family dwellings where the applied loads do not exceed the values shown in Table 2. The BBA has not assessed the product for use in communal areas of blocks of flats or commercial buildings, or where the design loads are greater than those stated in Table 2.

Table 2 Maximum characteristic loads for single-family dwellings

Description	Maximum characteristic loads for single-family dwellings
Imposed uniformly distributed load (UDL) (kN·m ⁻²)	1.5 ⁽¹⁾
Imposed concentrated load (kN)	2.0 ⁽¹⁾⁽²⁾
Line load partition parallel and perpendicular to the beam (kN·m ⁻¹)	1.0 ⁽³⁾⁽⁴⁾
Allowance for moveable partition (kN·m ⁻²)	1.0 ⁽³⁾
Finishes (kN·m ⁻²)	0.5

- (1) Imposed concentrated load must not be combined with the imposed UDL or other variable actions.
- (2) Imposed concentrated load is assumed to be applied over a square plate not less than 50 by 50 mm.
- (3) Either the imposed load for lightweight partitions (moveable) or line load partition must be considered.
- (4) Non-load bearing partition walls heavier than 1.0 kN·m⁻¹, in any orientation with respect to the concrete beams, must either be supported by the foundation or bear directly on the concrete beams.

British Board of Agrément

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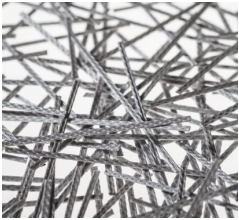
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NHBC Accepted Housing Oversight Concrete

Information for House Builders / Ready Mix / Contractors



Durus®
EasyFinish

- **Cost effective dosage per m³**
- **Mixes and finishes better than other longer fibre products.**
- **Nationwide availability**
- **Accepted in NHBC flooring systems**
- **Approved by the beam & block floor manufacturers**

- **Cost Effective Dosage per m³** - Adfil have invested in extensive R&D, new state of the art manufacturing equipment and accredited testing to ensure that you get a cost effective dosage for fibre reinforced concrete.
- **Mixes and finishes better than longer fibres** - Ready Mix Suppliers are happy that our shorter length fibres makes it easier to mix in the concrete. Installers rarely report any finishing issues.
- **Nationwide availability** - Durus EasyFinish is the macro fibre product of choice for many Contractors. This product is readily available from most Ready Mix plants nationwide.
- **Accepted in NHBC approved flooring systems** - This gives you assurance that our fibres comply with all the necessary requirements for use.

Concrete Types

Durus® EasyFinish can be used in Slump Concrete with S3 or S4 consistence, or in Self Compacting with flow consistence of SF3 & SF4. The concrete will arrive on-site with the fibres already added at the required dosage from your Ready Mix supplier.

Installation

When using Slump concrete with **Durus® EasyFinish** it can be easily placed with a rake and finished with a conventional float. Screed bars or magic screeders are also sometimes used.

Where SCC with **Durus® EasyFinish** mixes are used, a dapple bar should be used to finish the concrete after placement. This will orientate the fibres horizontally beneath the concrete surface.

Installation should be in accordance with the BPF 'Application Guide for the Specification & Installation of concrete toppings to beam & EPS suspended floors'.

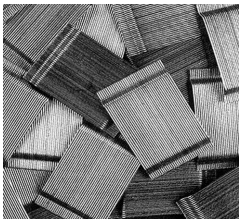


61% Reduction in CO₂ in comparison to traditional A142 steel mesh



NHBC Accepted Housing Oversite Concrete

Information for House Builders / Ready Mix / Contractors



Adfil® SF86

- **Cost Effective Dosage per m³**
- **High quality finish**
- **Easier to mix**
- **Accepted in NHBC flooring systems**
- **Approved by the beam & block floor manufacturers**

- **Cost Effective Dosage per m³** - Adfil has made significant investment in testing to ensure one of the lowest dosages of steel fibre reinforcement for this application.
- **High Quality finish** - with most steel fibres in concrete a high quality finish is achieved, meaning little or no remedial work after laying.
- **Easier to mix** - Lower dosage and less fibres makes Adfil SF86 easier to mix in concrete.
- **Accepted in NHBC approved flooring systems** - This gives you assurance that our fibres comply with all the requirements.
- **Reduced Packaging** for less waste. Supplied in paper sacks for easy disposal.

Concrete Types

Adfil® SF86 can be used in Slump Concrete with S3 or S4 consistence, or in Self Compacting with flow consistence of SF3 & SF4. The concrete will arrive on-site with the fibres already added at the required dosage from your Ready Mix supplier.

Installation

When using Slump concrete with **Adfil® SF86** it can be easily placed with a rake and finished with a conventional float. Screed bars or magic screeders are also sometimes used.

Where SCC with **Adfil® SF86** mixes are used, a dapple bar should be used to finish the concrete after placement. This will orientate the fibres horizontally beneath the concrete surface.

Installation should be in accordance with the BPF 'Application Guide for the Specification & Installation of concrete toppings to beam & EPS suspended floors'



54% Reduction in CO₂ in comparison to traditional A142 steel mesh



NHBC Accepted Housing Oversight Concrete

Information for House Builders / Ready Mix / Contractors



Zero Carbon Targets

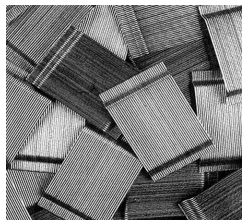
With the emphasis on using more sustainable construction methods **Durus® EasyFinish** & **Adfil® SF86** fibres can give your project considerable reductions in the carbon footprint that is being made.

Through an independent report you can save the following.



Durus®
EasyFinish

61% Reduction in CO₂ in comparison to traditional A142 steel mesh



Adfil® SF86

54% Reduction in CO₂ in comparison to traditional A142 steel mesh

In addition to the CO₂ reduction you will benefit from

- **Quicker construction**
- **Safer site work not cutting mesh**
- **Guaranteed placement of the reinforcement**
- **Less Site waste**



Suggested Mixing Procedure for Durus® Macro

When adding this fibre into concrete, careful attention must be taken with the batching and mixing procedure.



The suggested procedures below are based upon our own testing. However, experience suggests that different concrete plants, trucks and materials may give varying results and we therefore advise that individual plant trials are

For Dry Batch Plants:

- Load the truck mixer with all ingredients **excluding the fibres**
- Add **1 bag** of Macro fibres approximately every **30 seconds** (**Not all at once**)
- Mix the truck at **full speed for 4-5 minutes** before you leave for site
- Check your load and leave or carry out any required testing.



Adding Fibre to the back of the truck

For Wet Batch Plants:

- **Add the fibres in the plant mixer with the other concrete ingredients.** Take into account your general safety procedures.
 - i : **Either directly into the plant mixer**
 - ii : **Or onto the aggregate conveyor**
- Check your load and leave or carry out any required testing.



Adding Fibre to the mixer

If the **Fibres cannot** be added to the plant mixer then the **Dry Batch** Plant mixing procedure is suggested.

The **Durus** bags are made of pulpable paper and can be added directly into your concrete.

NOTE: If you are adding in micro fibres as well, refer to the micro fibre mixing procedure.

Batching films are available via our website www.adfil.com



Final 5 minute mix at full speed

Suggested Mixing Procedure for Adfil® SF86

When adding this fibre into concrete, careful attention must be taken with the batching and mixing procedure.



The suggested procedures below are based upon our own testing. However, experience suggests that different concrete plants, trucks and materials may give varying results and we therefore advise that individual plant trials are

For Dry Batch Plants:

- Load the truck mixer with all ingredients **excluding the fibres**
- Add **1 bag** of Steel fibres approximately every **30 seconds** (**Not all at once**)
 - i : Either directly into the truck if possible
 - ii : Or onto a conveyor
- Mix the truck at **full speed for 4-5 minutes** before you leave for site
- Check your load and leave or carry out any required testing.



Adding Fibre to the back of the truck

For Wet Batch Plants:

- **Add the fibres in the plant mixer with the other concrete ingredients.** Take into account your general safety procedures.
 - i : Either directly into the plant mixer
 - ii : Or onto the aggregate conveyor
- Check your load and leave or carry out any required testing.



Adding Fibre to the mixer

If the Fibres cannot be added to the plant mixer then the **Dry Batch** Plant mixing procedure is suggested.

The **Adfil SF** bags **are not** pulpable paper and **should not** be added to the concrete.

NOTE: If you are adding in micro fibres as well, refer to the micro fibre mixing procedure.



Final 5 minute mix at full speed



Suggested Mixing Procedure for Adfil® Micro

When adding this fibre into concrete, careful attention must be taken with the batching and mixing procedure.



The suggested procedures below are based upon our own testing. However, experience suggests that different concrete plants, trucks and materials may give varying results and we therefore advise that individual plant trials are

For Dry Batch Plants:

- Add 1/3 of your mixing water to the truck mixer
- Add **1 bag** of Micro fibres approximately every **30 seconds** (**Not all at once**), whilst the barrel is rotating.
- Add in your concrete materials
- Check your load and leave or carry out any required testing.



Adding Fibre to the back of the truck

For Wet Batch Plants:

- **Add the fibres in the plant mixer with approximately 1/3 of your mixing water.** Take into account your general safety procedures.
 - i : Either directly into the plant mixer
 - ii : Or onto the aggregate conveyor
- **Add** the other concrete ingredients,
- Check your load and leave or carry out any required testing.



Adding Fibre to the mixer

If the **Fibres cannot** be added to the plant mixer then the **Dry Batch** Plant mixing procedure is suggested.

The **Micro fibre** bags are made of pulpable paper and can be added directly into your concrete.



Final 5 minute mix at full speed

Batching films are available via our website www.adfil.com



Internal Sales

Help Information



The following Information is to help Internal & External sales to sell fibre reinforced concrete as an added value product.

The information is provided as guidance and to encourage the customer to consider the “Cost saving benefits” & “Time saving benefits of using fibre concrete.

Fibre Type Help Sheet tells you what fibres you could be asked for & what Adfil fibre you can offer.

Fibre Concrete Savings Indication Sheet gives you an indication of what the customer could save by using fibre concrete.

Fibre Concrete Quotation Savings Sheet is an example of what you could send along with your concrete quote to encourage your customer to buy fibre concrete. (You will be provided with a useable word document to enable you to fill this in and send to the customer)

The “Internal Sales” film on our website will also help.

If you are in any doubt always contact your Adfil Representative or Sales Manager.



Fibre Type Help Sheet

Typical fibres asked for and which you can offer



This tells you the fibres you might get asked for and which fibres you can offer them.

What the customer might ask for "MICRO"	What fibre brand might be asked for	Adfil Fibre for you to offer	Why are you offering this
<p>"Poly Ones"</p> <p>"Fluffy Ones"</p> <p>"Feathers"</p> <p>"Just for Cracking"</p> 	<p>Fibre Mesh 150 12mm</p> <p>Sika 150</p> <p>Vertex</p> <p>Sika Fibre 6-FF</p> <p>Vertex Screed</p> <p>Fibrecast 500-6</p>	<p>Fibrin XT or XT Ultra or Fibreflex</p> <p>Fibrin 660F</p>	<p>We have them in stock</p> <p>It's a better price for you</p> <p>They do the same thing</p> <p>They are better fibres</p>
What the customer might ask for "MACRO"	What fibre brand might be asked for	Adfil Fibre for you to offer	Why are you offering this
<p>"Plastic Ones"</p> <p>"Tooth Picks"</p> <p>"Structural Ones"</p> <p>"Housing Ones"</p> 	<p>Enduro HPP45 Or HPP50</p> <p>B&BA Approved Macro</p> <p>Forta Ferro 54mm</p> <p>Sika Fibreforce</p> <p>Strux 90/40</p> <p>Nexus 85</p>	<p>Durus EasyFinish</p>	<p>Lower Dosage</p> <p>Better price for you</p> <p>It's shorter so finishes better</p> <p>It's written into specifications</p>
What the customer might ask for "Steel"	What fibre brand might be asked for	Adfil Fibre for you to offer	Why are you offering this
<p>"Metal Ones"</p> <p>"Pins"</p> <p>"Housing Ones"</p> 	<p>Novocon</p> <p>B&BA Approved Steel</p> <p>Zenith 60</p>	<p>Adfil SF86</p>	<p>Lower Dosage</p> <p>Better price for you</p> <p>Stronger fibre</p> <p>It's written into specifications</p>



Fibre Concrete Savings Indication

Possible savings your customer could make



It tells you the Cubic Meter (m³) volume of concrete you are quoting and then an indication of possible savings in Money & Time they could save by using Fibre Concrete in their project.

On a 150mm thick slab with 2 layers of steel mesh

Volume of concrete	£ Cost Saving	Time Saving
50 m ³	£2500	1 Day
100 m ³	£4000	1.5 Days
150 m ³	£5000	2 Days
200 m ³	£8000	3 Days
300 m ³	£12000	4 Days
500 m ³	£18000	5 Days

On a 150mm thick slab with 1 layers of steel mesh

Volume of concrete	£ Cost Saving	Time Saving
50 m ³	£1500	0.5 Day
100 m ³	£1800	1 Day
150 m ³	£2500	1.5 Days
200 m ³	£3500	2 Days
300 m ³	£4500	2.5 Days
500 m ³	£7000	3 Days

On a 200mm thick slab with 2 layers of steel mesh

Volume of concrete	£ Cost Saving	Time Saving
50 m ³	£1800	1 Day
100 m ³	£2500	1.5 Days
150 m ³	£4000	2 Days
200 m ³	£5500	3 Days
300 m ³	£7500	4 Days
500 m ³	£12000	5 Days

On a 200mm thick slab with 1 layers of steel mesh

Volume of concrete	£ Cost Saving	Time Saving
50 m ³	£1000	0.5 Day
100 m ³	£1500	1 Day
150 m ³	£2200	1.5 Days
200 m ³	£3200	2 Days
300 m ³	£4200	2.5 Days
500 m ³	£5000	3 Days

Fibre Concrete Quotation Savings

Example Only



This is an indication only of the estimated savings which you could make by using Fibre Concrete in your project

Slab Depth	How many Layers of mesh	M ³ of concrete
150mm	2	100m ³
EXAMPLE ONLY		
Cost Saving		£4000
Time Saving		1.5 Days

- The fibre reinforced concrete will replace your need for steel mesh reinforcement and will arrive in your concrete for direct placement in your project.
- If you have agreed to have contact from our team then we will be in touch very soon to explain how these savings can be made.
- If you haven't then please let us know and we will have someone call you. And you could potentially save time and money on this project and the next.

Steel Mesh Replacement Indication

Always consult Adfil



This is for guidance only and not the final dosage you should give.

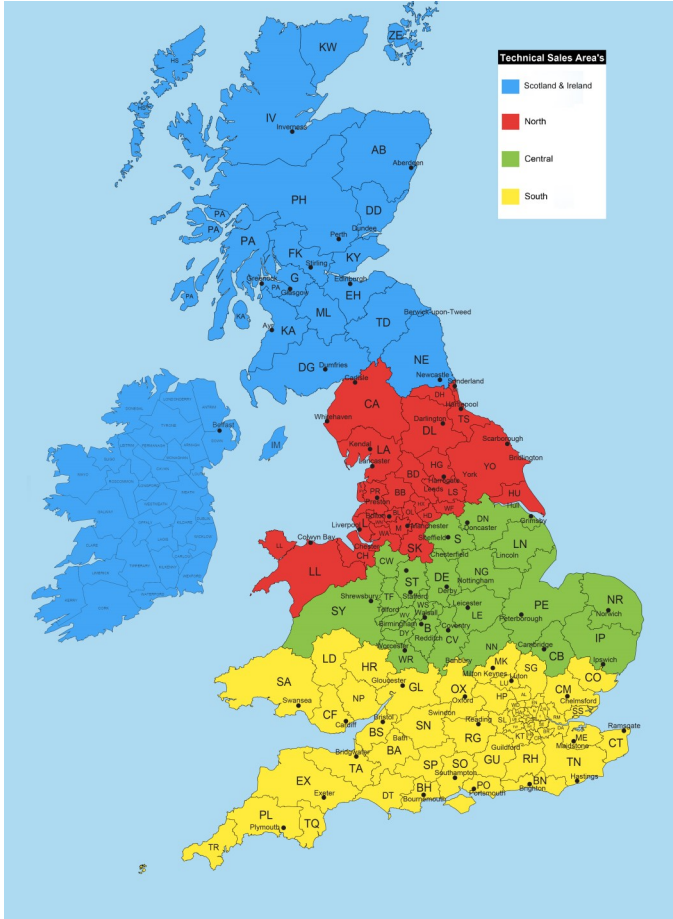
Durus Easy Finish		MESH TYPE (BAR DIAMETER) 2 x LAYERS				
		A98 (5mm)	A142 (6mm)	A193 (7mm)	A252 (8mm)	A393 (10mm)
SLAB THICKNESS (MM) C35 CONCRETE	100	2.5Kg	2.5Kg	Consult Adfil	Consult Adfil	Consult Adfil
	150	2.5Kg	2.5Kg	2.5Kg	Consult Adfil	Consult Adfil
	175	2.5Kg	2.5Kg	2.5Kg	2.5Kg	Consult Adfil
	200	2.5Kg	2.5Kg	2.5Kg	2.5Kg	2.5Kg
	225	2.5Kg	2.5Kg	2.5Kg	2.5Kg	2.5Kg
	250	2.5Kg	2.5Kg	2.5Kg	2.5Kg	2.5Kg
	275	2.5Kg	2.5Kg	2.5Kg	2.5Kg	2.5Kg
	300	2.5Kg	2.5Kg	2.5Kg	2.5Kg	2.5Kg

- This information is to achieve the same or better bending moment with fibres to that of steel mesh in a ground bearing concrete slab.
- Calculation References are EC2 & FIB Model Code 2010
- Remember this is for guidance only and you should always consult your Adfil Representative.



UK Technical Sales

Assistance



For any assistance please contact one of the following to get appropriate technical support:

Scotland & Ireland :
+44 (0)7516506016

Northern :
+44 (0)7785616975

Central :
+44 (0)7801300966

Southern :
+44 (0)7824015717

National :
+44 (0)7801595581

Customer Service T: +44 (0) 1482 274777 E: orders@adfil.com

Reinforced concrete reinvented

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