



Bedding Mortars

Weber Technical Mortars for the Construction Industry



we care

About Weber

As a recognised manufacturer and innovator of easy-to-apply products in the technical mortars, facades, flooring systems and tile fixing markets, Weber is a leading player in the construction products industry.

The natural synergy between these specialist activities enables Weber to provide integrated solutions for a wide range of projects from building renovation and refurbishment to new building developments and major civil engineering.

Weber does not sell only products but the complete solution which includes the services that go with the products; technical support and training. Based on its strong knowledge and experience of the market, the Weber training programmes meet the needs of its customers. Weber provides specifiers, developers and contractors across the board with substantial technical support, both before, during and after contract periods.

About Saint-Gobain

Weber is part of Saint-Gobain, one of the world's leading industrial groups with activities in construction products, flat glass and packaging, high performance materials and building distribution.

Saint-Gobain is an international group employing around 180,000 people in over 67 countries worldwide. Established in France in 1665, Saint-Gobain is one of the world's largest industrial groups.

Some of the UK and Ireland's most respected companies and brands in the construction sector are part of Saint-Gobain, including British Gypsum, Glassolutions, Isover, PAM, Artex, Ecophon and Pasquill. Together these businesses offer an unrivalled range of products and innovative material solutions that give architects and designers the ability to respond to the latest trends, whilst meeting the most exacting performance and legislative standards.



Weber's Technical Mortars Range

Along with the range of Bedding Mortar products covered in this guide, Weber also offer solutions to the Construction Market in the sectors of Concrete Repair & Protection, Precision Grouts and Structural Strengthening.

Concrete Repair & Protection – Weber has a wide portfolio of products designed to facilitate repair and protection of concrete in most circumstances, ranging from hand placed materials for localised non-structural repairs, to flowable or spray solutions for mass structural replacement.

Precision Grouting – Reliable transfer of loads from structure to supporting foundations is a vital element of design in any civil engineering project, Weber's high performance Precision Grouts offer excellent dynamic load carrying capacity, are extremely durable and provide good chemical resistance.

Structural Strengthening – Upgrading of buildings, bridges and structural components through the use of Fibre Reinforced Polymer (FRP) technology where high tensile strength, lightweight fibres with proven durability are utilised in the structural strengthening of concrete, masonry, metallic and timber structures.

Bedding Mortars

Weber offers a range of materials for the bedding of components in the Highway, Airport and Marine market place. These products are designed for the fast installation of components and long lasting reinstatement.

Maintenance and reinstatement work in these industries revolve around planning the works, time on site and performance of the materials, Weber prides itself in having specifically designed products with the contractor in mind that allow rapid installation and early return to service.

Weber Bedding Mortars have been designed to provide:

- Long term strength properties
- Resistance to shrinkage
- Long term durability
- Optimum workable properties
- Early site opening
- Consistency of performance

webercem range of bedding mortars are designed to be specified, mixed and used in an easy format. These rapid strength gain cement-based materials only require the addition of clean water. **webertec bedding mortar** is a 3-component resin-based mortar and is pre-packed in a pail and ready to mix on site with resin, hardener and filler component.

All products are CE marked where relevant, Declaration of Performance documentation (DoP's) are available online at www.netweber.co.uk or on request.

Markets & Applications

Weber Bedding Mortars provide ironwork bedding solutions for trunk road, motorway and airport situations, where high performance characteristics are paramount.

These include:

- **Iron work access chamber frames**
- **Chamber tops**
- **Gulley pots**
- **Airport runway lights**
- **Airport duct covers**
- **Cable troughs**
- **Pre-cast kerbs**
- **Paving flags**
- **Stone setts**
- **Street furniture**
- **Lighting posts**
- **Chamber brickwork**
- **Drainage units**



Requirements of a Bedding Mortar

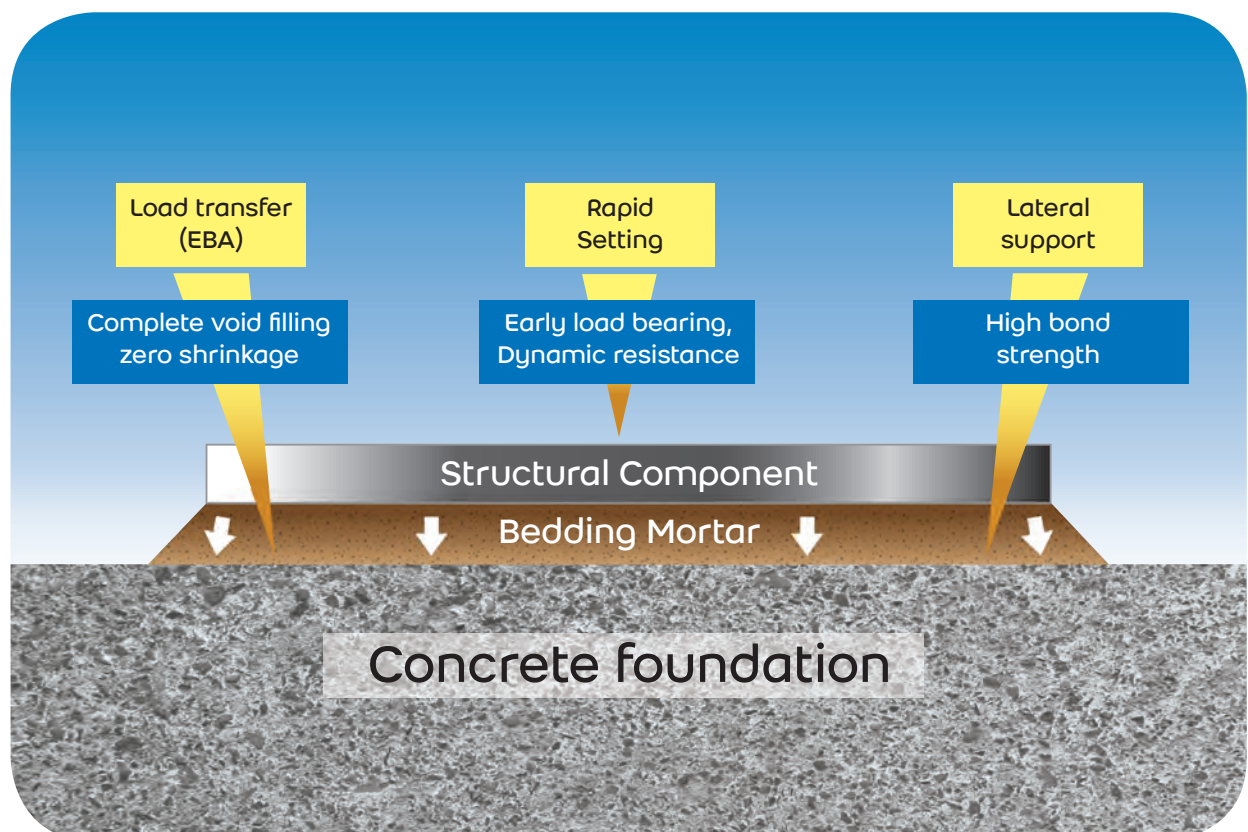
The most important requirement for a bedding mortar which is intended to transfer loads to the foundation, be it concrete, brickwork or masonry, is for it to provide complete and permanent filling of the space. Plain mortars, consisting of cement, aggregate and water, do not have such characteristics. Several other properties of the bedding mortar such as cohesiveness, rapid strength build-up, chemical resistance and compatibility with the operating environment are also important.

For most applications, the space between the foundation and the ironwork frame, stone slab, masonry block or other component, can best be filled by placing the mortar onto the foundation and then lowering the component and levelling it.

A plain sand / cement mortar with this consistency could be placed in the space and may develop adequate strength. However, after placement, the simple mortar will lose contact with the component because of settlement, shrinkage and bleeding and may not be able to resist dynamic forces and impact caused by traffic.

The resultant breakdown of the bedding will cause settlement, misalignment and possibly danger. To maintain permanent contact with the component, a bedding mortar must be formulated using special additives with cementitious or resin systems. These mortars have a high early strength, good EBA (Effective Bearing Area - which is the actual area of contact under a bearing surface), and excellent dynamic resistance.

Primary Functions of Bedding Mortars



Markets

Highways

Weber bedding mortars are formulated for the rapid installation of ironwork, street furniture, kerbs and paving. These mortars are designed to cure to high levels of strength and resilience, and minimise the road closure possession times.

Weber has been at the forefront of resin bedding mortar technology in research and development of highways reinstatement products. Weber has been successfully involved in supplying bedding mortars for over 35 years and **webertec bedding mortar** has been widely used for telecommunications installation on a nationwide UK basis for many years.

All **webercem** and **webertec** products are formulated in accordance with the Design Manual for Roads and Bridges, Volume 7, Section 2, Part 4, HD 27/15 and the Design Manual for Roads and Bridges Volume 4, Section 2, Part 5, HA 104/09.

Premature failures of ironwork installations have shown to be a major factor contributing to the high annual maintenance budget of UK roads.

These failures are not in the ironwork, but rather in substandard support systems, which can lead to rocking frames under traffic loads, noise pollution and even serious accidents.

The reasons for premature failure include the breakdown of the bedding material under dynamic loads which leads to the ironwork working loose. Cracking of a traditional bedding mortar can occur due to:

- Excessive shrinkage of the mortar during installation
- Weak strength sand/cement mortar
- Slow strength gain from a mortar
- Lack of resistance to fatigue and impact
- Differential stiffness between the access chamber and the surrounding road
- Movement of the ironwork frame under dynamic loading
- Failure of the adhesive mortar bond with sand/cement mortars

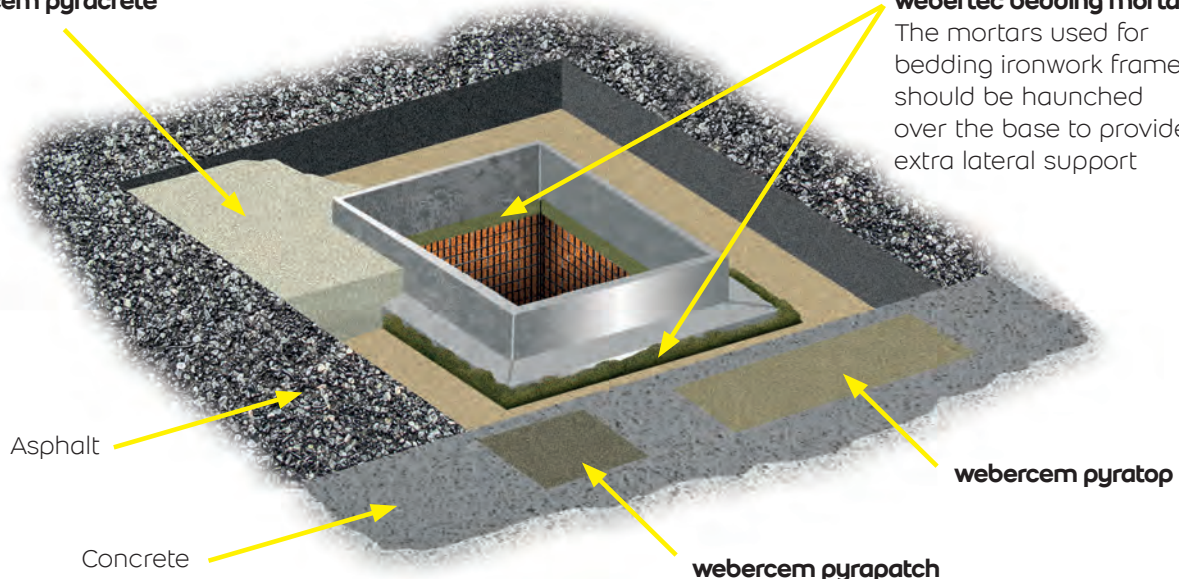
Repairs to Utilities Access Chambers

Product selection for major trunk roads and motorways

webercem pyracrete

webertec bedding mortar

The mortars used for bedding ironwork frames should be haunched over the base to provide extra lateral support



Street Reinstatement Works

Street furniture, kerbs and paving can become damaged through impact, weather, vandalism or general wear and tear. Repairs need to be fast and create the minimum of disruption to maintain the security, safety and aesthetic quality of an area.

The Weber range of mortars provides economical bedding materials for street furniture, lightweight ironwork, paving, stone setts and the bedding of chamber tops in non critical positions such as paths and alleyways.



Marine

Weber bedding mortars are commonly used in ports and harbours where structures and buildings are subject to sea immersion, wave action and continuous wetting and drying in a highly abrasive environment.

Loose blocks in stone sea walls and capstans can be re-fixed using **webertec bedding mortar**. Damage to small areas (up to 2m²) of concrete decks and hard standing areas can be patched with **webercem pyrapatch** whilst large scale abrasion or frost damage to can be resolved using **webercem pyratop**.



For more information please visit www.netweber.co.uk, call 08703 330070 or email technical@netweber.co.uk

Airports

The need to have runways and taxiways operational for the maximum period of time is of great importance to airport operators and airlines but the critical factor is safety. The airport must also maintain runway and taxiway paving and is responsible for the upkeep of the lighting required for safe aircraft operation.

Weber is the world leader in the manufacture of bedding mortars for the installation of lighting units to taxiways and runways. **webertec bedding mortar** a rapid setting resin-based mortar is specified and used in these highly demanding environments with great success.

Alongside the bedding mortars Weber produces precision grouts for the lighting cable and unit installation, rapid repair concretes for reinstatement and in-surface sealers to protect hard standing areas. Further information is available in our Solutions for Airports Guide.

For more information please visit www.netweber.co.uk, call 08703 330070 or email technical@netweber.co.uk



Products



Highways



Marine



Street Reinstatement Works



Airports

webertec bedding mortar



Polyester-based mortar for bedding and fixing access chamber frames, kerb stones, airport lighting bases, ducting, drains and highway fixtures.

webertec bedding mortar is a three component, polyester-based mortar for the bedding and fixing of access chamber frames, airport landing lights, duct frames and precast concrete units. It has been formulated for easy mixing and placement, even at low temperatures and, when cured, provides a durable, chemically resistant bedding and fixing material with good bond strength.

Uses:

Typical applications include:

- Bedding/fixing access chamber frames
- Bedding of airport landing lights
- Bedding of duct frames
- Fixing precast concrete units e.g. kerbstones

webertec bedding mortar is suitable for external use with:

- Concrete
- Dense brickwork
- Asphalt
- Stone
- Block paviers

Features & Benefits

- Fully complies with the Design Manual for Roads and Bridges Volume 4, Section 2, Part 5, HA 104/09 bedding mortar for trunk roads and motorways
- Meets the performance specification resulting from the Highways Agency sponsored LINK research contract carried out by Nottingham University's Department of Civil Engineering (1977)
- Easy to mix and place
- 20 minute working time for ease of placement
- Rapid setting for quick return to service (within 2 hours at 20°C)
- Rapid grade available for cold weather working or fast completion work
- Special tropical grade available for application in temperatures above 30°C
- Good chemical and freeze/thaw resistance

For more information please visit www.netweber.co.uk, call 08703 330070 or email technical@netweber.co.uk



webertec bedding mortar haunching

webercem pyrabed



Rapid-setting bedding mortar used in the reinstatement of road iron work and highway furniture.

webercem pyrabed is available in two grades depending on setting times, it contains a blend of special cements and graded aggregates, which when mixed with water produce fast setting bedding mortars for the rapid installation of ironwork and highway furniture. It can be applied to a depth of 10 – 100mm in one pass and the rapid strength development characteristics allow the road to be opened to traffic between 60 – 90 minutes after placement, dependent on the grade of product selected.

Uses

- Bedding and levelling of road ironwork and highway furniture
- Bonding of granite sets and flags
- Rapid installation of access chamber brickwork
- Emergency concrete road repair
- Rapid repair of kerbs, steps, platforms, precast units and honeycombed concrete
- Suitable for drypack applications
- Large cable duct installations

Features & Benefits

- A range of working times between 5 – 15 minutes at 20°C
- Rapid strength development reducing repair possession times
- Open to traffic between 60 – 90 minutes
- Shrinkage compensated
- Economical repair, can be extended with aggregate for repairs more than 100mm in thickness providing flexibility of use
- Excellent strength gain at low temperatures
- Excellent bond strength
- No primer required
- Complies with Design Manual for Roads and Bridges HD 27/15 achieving 20 N/mm² in less than 2 hours at 20°C
- Two grades of mortar to allow for varying traffic conditions

webercem pyracrete



General-purpose, rapid-setting, cement-based bedding concrete

webercem pyracrete is a ready-to-use rapid cement based concrete mix. It contains inert graded aggregates and non-chloride accelerators. The product has been designed to be poured into shuttered voids or to be used for applications where a lower slump is required.

Uses

- Setting of sleepers in tunnels
- Infilling
- Temporary patch repairs
- Many tunnel applications requiring a rapid setting concrete

Features & Benefits

- Single component - just add water
- Contains 5mm inert coarse graded aggregate
- Resistant to groundwater to Design Sulphate Class 3 to BRE Digest 363
- Ultra rapid setting
- Working time 10 mins at 25°C
- Can be applied to depths up to 500mm thickness in small areas
- Can be mixed in a conventional concrete mixer

webercem pyracrete



webercem pyrapatch



Fast-setting repair concrete for pavement patch or full-depth repairs.

webercem pyrapatch is a pre-packed product based on hydraulic cements with specially graded non-reactive aggregates. The product is polymer modified which, when mixed with clean water, produces a fast setting repair concrete, suitable for patch or full-depth repairs up to 2m². Typical patch repairs up to 100mm depth and extended with aggregate for full depth repairs. Complies with Highways Agency Specification for Highway Works.

Uses:

- Small-scale, rapid concrete repairs, 25mm - 100mm depth
- Industrial floors, rapid repair of failed floor slabs
- Bridge deck repairs
- Rapid repairs to pavement concrete both thin-bed and full-depth
- Car park decks and ramps
- Forecourts which require early trafficking
- Loading bays
- Coastal slipway and causeway repairs in tidal zones

Features & Benefits

- 15 - 20 minute working time at 20°C
- Trafficable within 3 hours
- Shrinkage compensated
- Sulphate resistant
- Resistant to freeze/thaw action
- Can be used for winter work down to 5°C
- Contains non-reactive granite aggregates giving excellent wear resistance
- May be extended with non-reactive 10mm granite aggregate for full depth repairs over 100mm depth
- Excellent strength gain at low temperatures
- Self priming
- Good compatibility with parent concrete
- Requires only the addition of water
- Independently tested by NAMAS approved laboratory

For more information please visit www.netweber.co.uk, call 08703 330070 or email technical@netweber.co.uk



webercem pyrapatch

webercem pyratop



Rapid strength-gain repair concrete for thin bonded pavement repairs

webercem pyratop is a two-part hydraulic cement based repair concrete consisting of one bag of powder and a smaller bag of special aggregate. It exhibits high early strength, is dimensionally stable and has excellent abrasion resistance. When mixed with clean water **webercem pyratop** produces an early strength concrete suitable for thin-bonded toppings or full-depth repairs up to 15m².

Uses

- Thin-bonded repairs 25mm to 75mm depth
- Repairs to steps and joints
- Industrial floors or failed floor slabs
- Bridge deck repairs
- Parking decks and ramps
- Loading bays
- Jetty decks and slipways to coastal areas
- Airport hard standings

Features & Benefits

- Fully complies with Highways Agency Specification for Highway Works
- 25-30 minute working time at 20°C
- 45 minute set time at 20°C
- Shrinkage compensated
- Sulphate resistant
- Resistant to freeze/thaw conditions
- Can be used for winter work down to 5°C
- Excellent abrasion resistance
- Twin components - binder & aggregate giving better consistency
- May be extended with non-reactive 10mm granite aggregate for full depth repairs over 75mm depth
- Excellent strength gain after 3 hours at low temperatures
- Self priming
- Good compatibility with parent concrete
- Requires only the addition of water

For more information please visit www.netweber.co.uk, call 08703 330070 or email technical@netweber.co.uk



webercem pyratop

Case Studies



Brighton Marina, **webercem pyratop**



Highways



Marine



Street Reinstatement Works



Airports

Project: Access Chamber Reinstatement, Castleblaney, Co Monaghan



Products: **webercem pyrabed** & **webertec bedding mortar**

Client: Monaghan County Council

Contractor: Monaghan County Council

Monaghan County Council was experiencing problems with failure of access chamber covers and frames due to the breakdown of the bedding material especially in areas of high traffic density.

The repair of these access chambers is a serious problem due to the time constraints of working in areas of heavy traffic and the problems of allowing the bedding material to set. Their traditional bedding material is a standard sand and cement mix, which requires up to 7 days to achieve a full set and has a poor record of longevity against the constant loading of heavy traffic.

Monaghan County Council used both **webercem pyrabed** and **webertec bedding mortar** to provide a quick return to service for the covers and frames while also ensuring the longevity of the system within the pavement with a return to service of 60 minutes achievable for both products.



Project: Farnborough Airport



Product: **webercem pyrabed**

Client: BAA

Contractor: Associated Asphalt Ltd

The installation of a landing light system required the excavation of several 100mm wide by 200mm deep trenches running across the main landing strip.

Each 15 metre length of excavated trench needed to be reinstated and open to airport traffic within the 6 hour night shift allowed to affect the works.

webercem pyrabed was selected to provide a workable open time of 15 minutes allowing sufficient mixed mortar to be placed and finished within one operation. The mortar was blended on site with 30% by weight of 10mm aggregate to limit the exotherm produced during hydration and to provide a more economic repair system. An average of 80 linear meters of trench per shift was reinstated allowing the runway to remain in service until it was resurfaced one week later.



Project: Tyne Tunnel, Newcastle



Product: **webercem pyrapatch**
Client: Newcastle City Council
Contractor: Pitchmastic Concrete Repair Specialist

Tyne Tunnel has suffered over the years from de-icing road salts causing chloride to attack the concrete road deck. This has led to reinforcement corrosion and subsequent spalled concrete to the concrete deck. The strategic nature of the Tyne Tunnel meant total closure for repairs was not an option. The client wanted a permanent solution with repairs to be conducted within tight possessions of the tunnel.

webercem pyrapatch, a fast setting pavement repair concrete, was used to reinstate the defective concrete to the road decks. The tight possession times meant the material was required to set fast and gain at least 20 N/mm² within 3 hours to allow trafficking during the daytime. The contractor found the material ideal as a permanent solution for road deck repairs within the tunnel sections.

webercem pyrapatch complies with the Highways Agency Specification for Highway Works and is approved for trunk road pavement repairs as a permanent repair concrete.



Project: Street Furniture, Stoke-on-Trent Town Centre



Product: **webertec bedding mortar**

Road closures can be costly and disruptive and when used to install street furniture for urban landscaping schemes. Signs and posts can become dislodged when installed with conventional sand/cement mortar.

webertec bedding mortar was used to fix not only new access chambers easily and quickly, but was also used to bed lane-barriers, kerbs and all types of street furniture in Stoke-on-Trent.

Its rapid-setting properties have found favour with local authorities to prevent removal of barriers by vandals during setting, such as in the fixing down of speed bumps, bollards and kerbs.



Project: Brighton Marina



Product: **webercem pyratop**
Client: Brighton Marina Limited
Contractor: Concrete Repairs Limited (CRL)

The harsh environment in which this sea defence structure has lived for nearly 40 years has prompted a continuous monitoring of the structural and material integrity of the breakwaters. Failure of these breakwaters would be catastrophic both from a Health & Safety and commercial point of view, therefore on-going preventive maintenance was the only policy.

webercem pyratop was used to resurface the roadway above the caisson to achieve rapid strength gain as this product provides 25N/mm² compressive strength in just one day and conforms to BS EN 1504-3 meeting the requirements for a Class R4 repair product.

Ben Lawson, senior contract manager, CRL, managed the Brighton Marina project. "This was a complex project but a very worthwhile one in many ways. We specified Weber products from past and very satisfactory experience, as well as for exemplary technical support. The use of the **webercem pyratop** for the roadway cover screed meant that we could re-lay the surface in one day and this fast curing meant access for emergency vehicles was possible very quickly."



Project: Glasgow Airport Runway 05/23



Products: **webercem pyrapatch**, **webertec bedding mortar** & **webertec grout FG**
Client: BAA
Contractor: AMEC/Tarmac JV

Glasgow Airport main runway was nearing the end of its design life and strengthening works were required to rebuild runway 05/23. Work involved strengthening the central section for aircraft loadings for the next 15 years, replacing the airfield lighting system and resurfacing the runway - all within a tight runway possession between 10:30pm and 05:40am every night. The contractor needed to install new runway cable ducts and 920 new runway lights within this possession.

webercem pyrapatch, a fast setting pavement repair concrete, was used to install the new lighting ducts along the main runway. The tight possession times meant the material was required to set fast and gain at least 30 N/mm² within 3 hours to allow aircraft landings after 06:00 hours. The contractor cut chases through the existing runway and used **webercem pyrapatch** to infill around the electrical ducts.

The lighting units were installed using the BAA approved **webertec bedding mortar**, a fast setting resin mortar enabled the contractor to install the lighting units quickly in temperatures down to 0°C and the lights were then grouted into position with **webertec grout FG**.



Technical Support and Services

Weber has built a reputation for its technical support, both at design and on site during the application programme.

Qualified civil engineers and experienced specialists are available in the field to provide important design and preparation advice to specifier and contractor and support to applicators as the project progresses.

While these teams can assist when problems develop, their main purpose is to address issues vital to the successful completion of a project before the problems occur and assist all involved in reaching the 'right first time' goal.



Recognised & Recommended Applicators

Experienced labour is more and more difficult to locate, especially in the application of technical products where the standard of work left reflects directly on specifier indemnity. Weber will put specifiers and clients in touch with specialist applicators that have shown they can produce good quality work. A selection of Recognised and Recommended Applicators can be supplied for major projects detailing their range of specialities, skills and resources, all will have experience in successfully applying Weber materials.



Weber Training Programme



Weber appreciates the importance of training and aims to bridge the skills divide by working closely with applicators. Weber offer specialist training aligned to industry requirements, available through dedicated training facilities in Flitwick and a national network of Technical Academies. The Saint-Gobain Technical Academies have been designed to help combat the industry's skills shortage and provide training on new technologies and systems, as well as up-to-date information around legislation.

The multi-purpose facility at Flitwick has been developed to feature innovation and product demonstration areas, practical workshops, lecture rooms and meeting facilities. Courses can be designed to meet product-specific requirements, or to suit different levels of experience and skills.

Typical course content...

- Introduction and Health & Safety
- Combination of practical and theoretical training covering...
 - Concrete repair
 - Concrete protection
 - Precision grouting and anchoring
 - Structural bonding
 - Composite strengthening
 - Highway maintenance mortars

How to book

To book places on any of the scheduled courses or enquire regarding the specialist courses..

Call: **0115 945 1154**

Email: **technical.academy@saint-gobain.com**

Book online: **www.netweber.co.uk**



Quality Assurance & Guarantees

Totally committed to quality, customer service and the ongoing development of high performance materials, Weber provides a Ten Year Materials Guarantee. The Weber Ten Year Guarantee covers all Weber products as long as they have been applied in accordance with the company's specification, instructions and good working practice. This guarantee does not affect your statutory rights.

Quality Assurance in manufacture is maintained through the use of modern plant and stringent quality testing. All facilities have regularly monitored quality systems and procedures in place and Weber has made considerable investment in achieving and maintaining the highest possible standards available. BS EN ISO standards are an important measure and control of the company's determination to follow these key drivers. All sites currently operate to BS EN ISO 9001:2000 and BS EN ISO 14001.



Installation of drainage channels,
webercem pyracrete

Sustainability

Weber takes the issue of sustainable development very seriously. In the UK and Ireland, we approach sustainable development in line with the Group's global strategy, but tailored to local requirements and circumstances. As part of the world leader in designing, manufacturing and distributing construction materials, we are committed to meeting some of the most fundamental challenges faced by the world today.

These are:

- Reducing energy consumption
- Limiting our impact on the environment
- Creating a new generation of buildings which are safe, comfortable and energy efficient

Weber is continually investigating innovative concepts for materials and exploring methods of production that are aimed at reducing its impact on the world's natural resources and involve lower risk to applicators in use.



Photo courtesy of Saint-Gobain PAM

Standards

Weber Bedding Mortar products listed in this guide have all been tested and adhere to the relevant parts of the industry requirement of BS EN 1504 standard (Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity), where relevant.


These include:

- BS EN 1504 Part 3 - Structural and non-structural repair
- BS EN 1504 Part 6 - Anchoring of reinforcing steel



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