



MODERN METHODS OF STRUCTURAL, MASONRY AND CONCRETE REPAIR



APPROVED DESIGNERS, SUPPLIERS AND INSTALLERS OF
THORHELICAL® AND **twistfix** PRODUCTS

Newman Building Solutions Ltd

Newman Building Solutions Ltd are a leading, multi-skilled, specialist, structural repair company providing innovative remedial solutions. We utilise the most effective methods of modern day structural, masonry and concrete repair.

As approved contractors for leading manufacturers and suppliers such as Twistfix and Steadfast Specialist Products we have the technical and practical skills and experience to provide a complete design, specification and repair service all of which are covered by genuine insurance backed guarantees.

We offer many Structural Repair services such as Crack Repair & Bed Joint Reinforcement, Wall Tie Replacement, Lateral Restraint, Lintel Repairs, Bridge Repairs and Foundation Repairs. Our specialist team provide Concrete Investigation & Repair, Balcony & Walkway Renovation as well as other building and structural repairs.

Modern day methods of structural repair are often non-disruptive and allow for an invisible, sympathetic repair making them ideal for historical and heritage buildings. Our methods also avoid the cost of traditional methods of structural repair such as take-down and rebuild.

Newman Building Solutions also offer other specialised repair services to the remedial industry. Masonry Facade Maintenance, Brick & Stone Repairs, Brick Tinting and Emergency Repairs specialising in damp, flood, fire and impact damage.

We are approved, registered contractors for leading manufacturers and suppliers to the building and structural repairs industry including Twistfix, ThorHelical, Steadfast, Sika, Vulkem & Flexcrete.

As a member of Construction Guarantee Services (CGS), all of our repairs can be covered by an optional, CGS 10 Year Guarantee Protection Insurance, offering our clients complete peace of mind.

Managing director Steve Newman's ethos of proving a professional, quality and cost-effective service is passed throughout the company ensuring we provide the highest standards of workmanship and client care.

All of our technicians are highly-skilled, time-served tradesmen and we invest in their development by providing high standards of training, health and safety and equipment.

Our client base ranges from private domestic customers, housing associations and councils to structural engineers, building surveyors and loss adjusters.



Five Steps to Client Satisfaction

"NBS repaired a slipping window arch at our house last week - I would highly recommend. They suggested a more sightly solution to the problem than our surveyor suggested, they were punctual and they tidied up after the work was finished. Thanks guys!" - Ms Lane, Oxford. Posted on our Facebook Page

| Survey | Diagnosis | Design & Specification | Installation | Guarantees |
|--|---|--|--|--|
| A detailed initial inspection is carried out to identify defects and weaknesses in a building and any historical or external factors that might have an effect on the structure. | An informed conclusion on the nature and cause of the defects is reached, based on the data collected at the survey stage. Correct diagnosis of the exact cause or causes of the fault is vital in prescribing the appropriate remedial action. | Our experienced team have a wide range of standard repair details to suit most situations. Where something bespoke is required our preferred network of structural engineers are able to design project-specific specifications and work instructions. | As approved installers for many leading manufacturers and suppliers to the remedial industry, our technicians are trained in all aspects of product installation and in-process testing. | CGS supports its members guarantees by arranging for them to be insured for 10 years by Guarantee Protection Insurance Ltd, a UK based insurance company authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority. |



"Thanks for all your help in resolving the problems with my bay windows & I will recommend you to anyone else with such problems. Thanks again, Nigel!" - London S.E. 4

Applications

As approved designers, suppliers and installers of Twistfix and Thor Helical products we are able to source the very best products on the market to ensure that our clients get the best possible repair, whatever the application.

Newman Building Solutions special relationships with Thor Helical and Twistfix enable us to supply "second generation" building reinforcement products that have been continuously developed and improved by the original inventors of the first helical bars which were launched in 1984 under an old brand name.

The engineered improvements to the Thor Helical products make them more versatile and reliable than earlier products that, to the non-trained production engineer, appear to be similar in design and function.

REMEDIAL TIES AND PINS

Self-tapping, hammer-in helical ties have an undercut screw thread that grips into a wide variety of building materials. With patented perfect-pitch twisting technology Thor Helical wall ties offer a distinct performance advantage when tying together cavity walls, de-laminating solid walls or separating partition walls. The patented Thor Helical CD Ties are designed for quick installation and with minimal disruption to the building's fabric. Ties are available in a wide range of widths and lengths which facilitates their use in a wide range of applications.

BED JOINT REINFORCEMENT & CRACK STITCHING

Helical reinforcement bars are ideal for stitching cracks in brickwork, reconnecting walls either side of the fracture and dissipating loads along the length of the helix. The twisted Thor Helical bars can also be used as bed joint reinforcement to form deep masonry beams that carry and transfer imposed loads. The perfect pitch twisting process delivers lengths of bar that are not only consistent in pitch but also consistent in tensile strength, something that cannot be achieved by older, wire-spinning techniques that are used to form inferior products.



Bay Window Repairs



Creating Masonry Beams



Lintel Repair



Lateral Restraint



Remedial Wall Ties



Reconnecting Partition Wall



Arch Lintel Repair



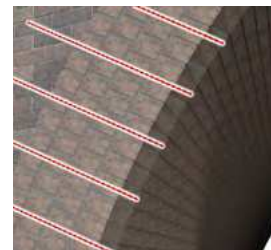
Repairing Cracks at Corners



Foundation Repair



Masonry Arch Repair



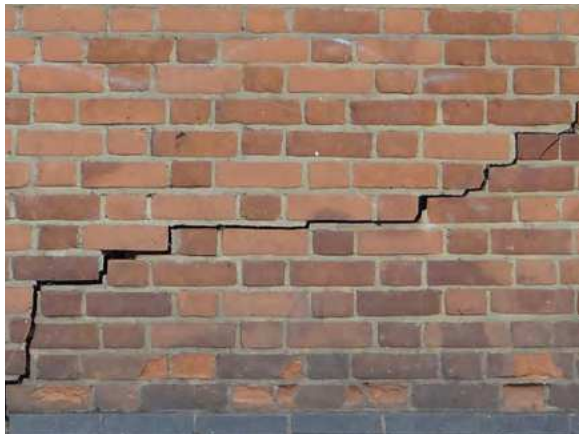
Applications

The first aspect of any masonry repair scheme is to alleviate the cause of the movement where this is possible. For example attending to any ground movement problems and removing invasive vegetation. One can then concentrate on strengthening and reinforcing the superstructure to provide resilience to further movement.

Using various combinations of retrofit reinforcement bars, lateral restraints and remedial ties, sagging and bowing tendencies can be alleviated. The use of brick reinforcement is a time saving, cost-effective way of restoring and enhancing the strength and durability of masonry construction by providing both structural and crack control benefits. Helical bars are available in a selection of lengths and diameters to offer an array of structural repair solutions.



Crack Stitching



Cracks in walls are a common problem and are caused by various forms of movement. The pattern and location of a crack in a wall can often point to its cause.

Crack stitching is a masonry repair technique that reconnects and reinforces cracked walls using high tensile, stainless steel helical bars that stitch across the fractures to strengthen and repair cracks.

When tying cracks in face brickwork these high strength bars are grouted into slots cut into mortar beds, ensuring the reinforcement is discreetly concealed once the mortar joint is pointed. Tensile forces are redistributed along the wall to dissipate load and minimise the risk of further cracking.

Masonry Beams



Used in pairs, stainless steel masonry reinforcing bars form deep masonry beams, which span areas of masonry failure, to redistribute loads and enhance the tensile, shear and flexural capacity of the wall.

When anchored across fractures helical bars progressively accumulate loads along the full length of the helix to reinstate the structural integrity of cracked walls.

The helical bars deliver high tensile reinforcement with unique torsional elastic yield characteristics and are ideally suited for crack stitching repairs and masonry wall reinforcement.

Retrofit masonry reinforcement in the form of helical bars having a tensile strength that is twice that of rebar.

Lintel Repairs



Lintel failure is a common problem and happens for a number of reasons. The most common being the introduction of new windows that do not have adequate load bearing properties. This causes sagging and cracking. Another common issue with lintels is the loss of buttress to the lintel causing the arch to slip which can be dangerous as it can cause collapse.

In the majority of cases repairs to lintels are straight forward using Bed Joint Reinforcement and grout free pinning ties to restore the structural integrity of the lintel whilst retaining the aesthetics of the facade.

Bay Windows



Movement occurs to bay windows for a number of reasons. Shallow foundations which are different to the main house are common. This means the bay can move in a variety of ways. Differential movement, when small cracks arise in the junction of the bay walls and the main property, can be repaired using pairs of masonry reinforcing bars drilled back into the main property to stop further movement. When the bay moves it can also bulge at floor level and when windows are replaced cracking may appear. In most instances bay windows can be repaired using a combination of Thor Helical solutions including piling using the shire pile.

All repair method statements are located on our website.

Wall Ties



Thor Helical remedial ties are manufactured in a variety of lengths and diameters and are engineered with work hardened helical blades that cut an interlocking thread into the host wall material. The ties are ideal for tying masonry façades to inner walls in situations where the bed joints in each leaf of the cavity wall are misaligned and also for walls built from dissimilar materials, including thin-joint block-work construction, ICF and timber frame buildings.

The ties are used to replace wall ties where existing ties are missing, insufficient or suffering from corrosion.

The picture to the left shows a helical wall tie in place above an insufficient tie. This installation was recently used as part of a project on 120 new build, timber-frame houses that had failed the NHBC inspection due to insufficient ties.

Lateral Restraint



Lateral restraint ties are for restraining bowing walls. The ties are designed to connect a masonry façade to two or more timber joists or studs. Fitted from outside the property with minimal disturbance, lateral restraint ties have a drill bit formed in their leading end for cutting into softwood joists. In most cases just few floorboards are lifted to determine the position of joists and any wires or pipes. A clearance hole is made through the façade and the lateral restraints are screwed in to the timbers. A resin fix is provided at the masonry connection to fully restrain bowing walls.

Reconnecting Separated Walls



Vertical restraint may be required due to bowing, separating, de-lamination or a lack of structural connection due to the existence of internal timber stud walls instead of toothed-in, masonry walls. Existing, non-structural timber walls can be turned into structural walls to help reconnect the masonry back together and restore the structural integrity of the property.

Newman Building Solutions have many ways in which to repair separating walls, and our free surveys and diagnosis will assist us in providing the most cost effective repair.

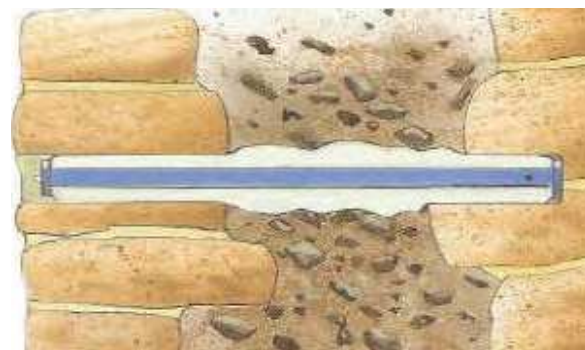
Masonry Arches



As well as providing a decorative feature, masonry arches, constructed in brick or stone, act as lintels supporting the weight above. Structural movement is not readily accommodated by Masonry Arches and in the event of outward movement of the abutments, cracking commonly occurs.

Other age related factors can be significant contributors to defects with Masonry Arches. Deterioration of materials due to the effects of chemical attack, frost damage, vibration, vegetation and exposure to rainwater penetration can lead to weakening of the structure and ultimately collapse if not addressed in a timely manner.

Rubble-Filled Walls



Anchoring systems offer a remarkably versatile, proven approach to internally strengthen masonry buildings and structures. They are ideal for reconnecting and reinforcing walls built in natural stone or that are rubble filled.

The system works by pre-drilling an oversized hole in the structure and inserting an anchor body surrounded by a fabric sock. A cementitious grout is injected through the middle of the anchor under low pressure. It passes through a series of grout flood holes into the fabric sock, inflating the entire assembly like a balloon forming the shape of the void and reconnecting the masonry.

Foundation Repairs

Newman Building Solutions specialise in the design and installation of foundation repairs using a combination of traditional techniques as well as modern methods of repair.

Our foundation systems include "Shire Piles" - screw-down micro piles, "Auger" piles - bored piles and steel case driven piles. A variety of systems can be used depending on circumstances such as the available space and the soil conditions. We will specify the type of pile that provides the most efficient solution and wherever possible, one that causes the least amount of disruption to the property owner.

Installation of helical, shire piles is typically less invasive than traditional underpinning methods. Small areas are excavated along the affected foundation wall, to foundation depth. The piles are then installed using an adapted pneumatic driving hammer, to a firm strata. This allows for installation in confined spaces - even allowing for internal underpinning, if deemed necessary. The mini piles are then tied into the existing foundations and external finishes made good. Compact pile caps remove the need for time consuming and expensive mass excavation, keeping inconvenience to an absolute minimum. The mini piles and pile stabilisers can generally be used to depths of approximately 10m (greater depths are achievable in certain conditions). The supports will carry loads from 30kN to 100kN dependent on ground conditions.

Auger piles are the solution for piling works on smaller sites where access is limited. These are ideal on a wide range of projects including house extensions, detached building plots, conservatory bases, and sites where environmental issues are a priority.

All of our mini piling techniques available with full anti-heave precautions if required.

We offer a full design service including soil investigations, site feasibility, calculations, CAD drawings and full written reports prior to the construction phase.

Repair of any associated cracks may be necessary by utilising either crack stitching methods or installing masonry beams.

Newman Building solutions are able to offer guaranteed insurance backed warranties for our repair schemes and all of our solutions comply with building regulations from design to construction and implementation.



Boundary & Retaining Walls



Retaining wall structures often fail due to increased loads, changes in the water table, freak weather, general ageing and deterioration of the structure. When a retaining structure fails the effects can be devastating causing the risk of collapse not only to the wall but also to the structure built on the ground the wall is retaining. Newman Building Solutions can reinstate the structural integrity of retaining walls with the introduction of Ground Anchors, combined with the Twistfix and ThorHelical helical bar systems. Capable of handling loadings of up to 200kn's, ground anchors combined with deep helical masonry beams offer a permanent guaranteed retaining solution.

Boundary walls, are of little structural importance but they are unappealing to the eye when they fail and they pose the risk of collapse. They can be easily repaired without the need for costly rebuilds by introducing the Twistfix and Thor Helical Bed Joint Reinforcement system.

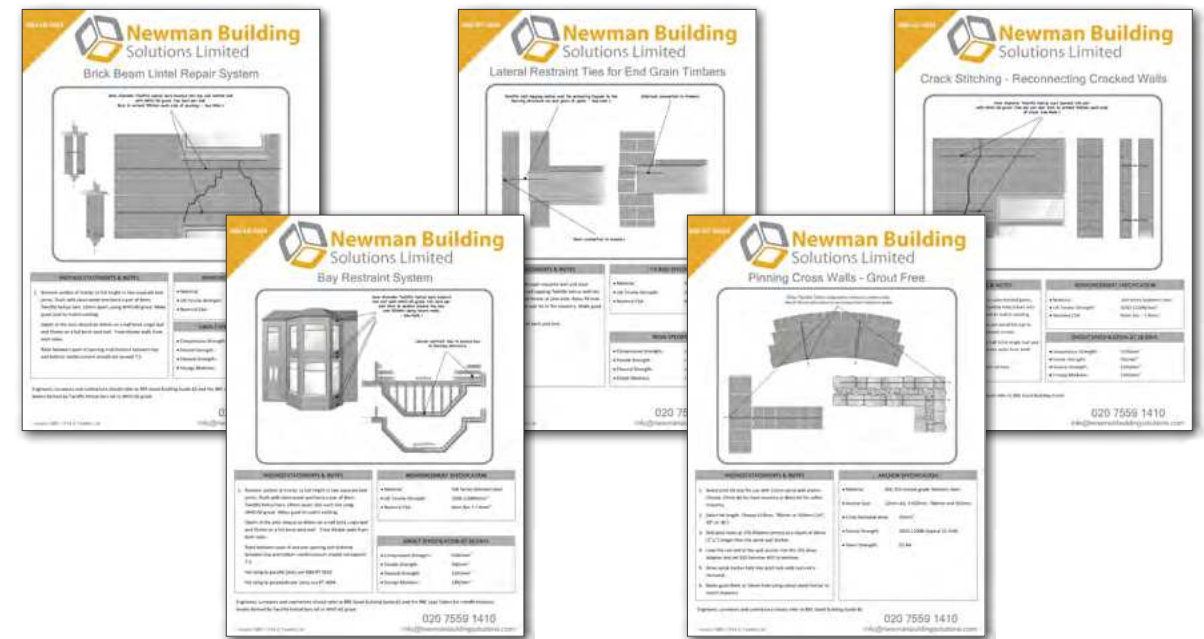
Using modern methods of masonry repair, Newman Building Solutions are able to offer vast savings in cost and time in comparison with traditional methods of rebuilding the failed structure.

Lack of movement joints is a common cause of cracking in both retaining and boundary walls, especially in walls of greater length. Remedial movement joints can be created using a combination of vertical cuts, wall ties, slip ties and silicone sealant.

As a leading specialist NBS are able to offer up to 10 year insurance backed guarantees on all restraint design schemes and up to 60 years with ground anchors.



Technical Documents



Newman Building Solutions have a library of standard repair details for both cavity and solid walls using remedial Heliforce Bars, HD Heliforce Bars, Grout Ties and Grout Free Ties. These are available for download in PDF format from our website along with the BRE Load Tables. Further formats can be provided on request for Architects and Engineers wishing to include the appropriate repair details within their specification. Our team are also available to advise clients on the most appropriate repair techniques. We are also able to provide CPDs for masonry repair techniques across Southern England and South Wales.

Video

We also have a growing library of standard repair and 'live' videos on our website, on our YouTube channel and our CD Business Card.



Concrete Investigation & Repair

Our trained structural surveyors are experienced in investigating buildings and structures including listed heritage structures. We offer concrete repair surveys and issue detailed written reports with repair diagnosis and method of repair.

Concrete can fail and become defective losing all structural integrity due to physical measures such as vibration and impact, freeze-thaw action, salt crystal expansion and erosion as well as mechanical defects such as alkali aggregate reaction and chemical exposure.

Reinforced concrete can fail for various reasons such as carbonation - where Carbon Dioxide (CO₂) that naturally occurs in the atmosphere, reacts with the calcium hydroxide. Corrosion of the reinforcing due to stray electrical current that can travel through the reinforcement and the presence of corrosive contaminants such as chlorides accelerate the corrosion dramatically.

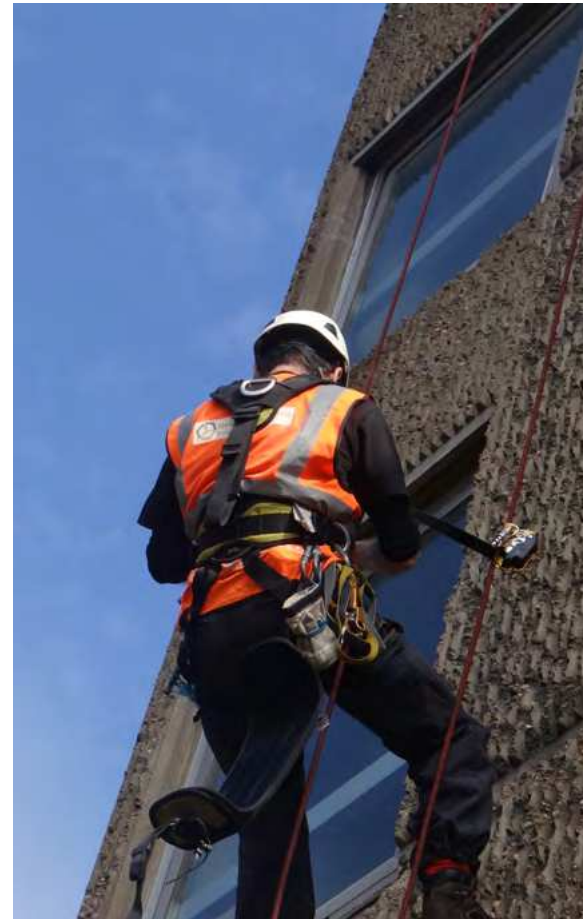
Newman Building Solutions work closely with the industries leading concrete repair manufacturers and employ highly skilled tradesmen to carry out concrete repairs.

Repair of the damaged structure can be treated by removing local areas of the damaged concrete and treating any defective reinforcing with a specialist primer protecting from further corrosion restoring the structural integrity. Reinstatement of the concrete surface is often carried out by hand using high strength repair mortars.

As approved contractors for the largest manufacturers in the concrete repair market, we can offer the solutions for all concrete repair problems. From large scale renovations and structures, to restoring kerbs and joint rises, Newman Building Solutions will have a product or system to do the job.

Products include but are not limited to:

- Primers & steel protection
- Cementitious repair mortars
- Resin repair mortars
- Crack injection and stitching materials
- Fast setting pavement repairs
- Decorative coatings
- Anti-carbonation coatings
- Concrete resurfacer



Balconies & Walkways

Newman Building Solutions specialise in the repair and refurbishment of Balconies that have become weak and structurally unsound requiring refurbishment to restore the structural integrity.

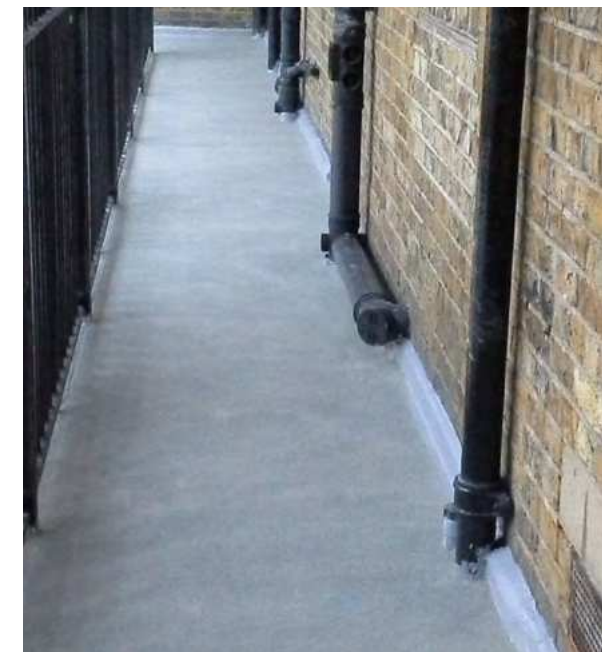
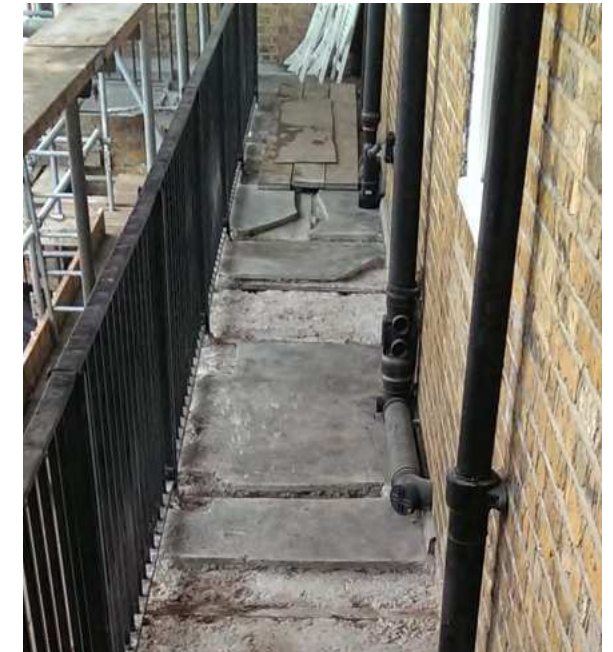
As well as being an eye-sore, damaged balconies and walkways can become unsafe requiring the services of a specialist contractor to design and implement a repair programme to restore the structural integrity of the balcony and/or restore the walkway.

To restore concrete balconies or stone balconies suffering from cracking, honeycombing of concrete, concrete cancer, stone failure etc, it is essential that repairs are carried out using the correct repair mortars and waterproofing systems. We employ high quality products such as the Sika range of repair mortars and Vulkem waterproofing system which we believe to be the best products currently available to the UK market.

The majority of the problems associated with concrete failure to balconies are associated with the penetration of moisture which is often caused by the concrete being exposed to the elements and requires complete water proofing and concrete repair.

Most waterproofing systems require long periods of time free from traffic in order to prime the surface and to apply a waterproofing system to seal the surface, which in most cases isn't practicable.

Newman Building Solutions are one of very few contractors in the country to have met the high standards set by Vulkem who have manufactured and developed a unique system that is cold applied and 100% waterproof within 1 hour of application and can be walked on within 1 hour after the finished installation. The Vulkem system is a cold applied liquid membrane that is applied onto the existing surface, troweled and levelled. When combined with flakes of paint a vast array of finishes can be achieved, in almost any colour, from flecking to solid colours to provide an aesthetically pleasing repair that is 100% waterproof.



VULKEM®

Facade Maintenance & Refurbishment



Cleaning

DOFF is a steam based stone cleaning system that can achieve temperatures of 150°C at the nozzle end. The operator is able to vary the temperature and pressure to remove either many types of paint or biological matter. The steam/superheated water will remove moss, algae, fungi and other biological matter and will also kill off spores. This means there's then no need to use a chemical biocide during the removal process or as a protection against further biological activity.



DOFF cleans stonework and masonry using high temperature steam. When the temperature in the system is high the pressure on the surface being cleaned is very gentle and the volume of water is low. The surface is therefore not saturated and will be dry within minutes.



Dust Free Blasting

The system creates a gentle swirling vortex using a mixture of low air pressure, little water and a safe inert fine granulate. The Head is modularised into separate components which results in an efficient and gentle swirling vortex. The removable nozzle cone can easily be changed so that a larger cone can be used to clean large areas such as ashlar or a smaller nozzle cone can be used for more intricate detail such as an elaborate capital or rustications.



- Removes carbon sulphation
- Removes lime & cement based paints
- Removes paint residues
- Removes some old oil based paints
- Removes bitumen
- Removes limescale



Brick & Stone Restoration

Repairing damaged bricks and stonework is far more cost-effective than replacement. The damage we see to bricks and stonework happens across both old and new buildings and includes freeze-thaw damage, failed pointing, erosion due to inclement weather, damage from vegetation and impact damage.



In older buildings what was once sharp or decorative brickwork details around doors, windows or sharp lines in stone lintels or mullions wear away and become indistinct. Using specialist repair mortars together with natural pigments our technicians are able to exactly replicate the colour, tone and texture of the original bricks or stone.



Stucco Repair

Stucco is one of the most durable wall surfaces available but because of its rigid nature, stucco can develop cracks and holes over time due to settling and impact damage. Once a crack or hole develops it is important to seal it from water to prevent further deterioration. Our technicians use specialist stucco repair mortars to repair and replace stucco and reform detailed profiles.



Re-pointing

Failed or damaged pointing is not only unsightly but can lead to more severe problems such as damp penetration, frost damage and even collapse. Selection of appropriate materials is critical and should be left to the professional. Newman Building Solutions ensure that the appropriate material is used and that the final finish matches the existing mortar.



Brick Tinting

Finding the correct bricks when extending or carrying out remedial works is an increasingly difficult task and reclaimed bricks are rarely available in sufficient quantities. Therefore brick tinting, a process of dyeing bricks to match, is the best solution. Combining natural colour pigments with a breathable fixing agent provides a permanent tint that is not lost to weathering or UV exposure. Once applied there is no ongoing maintenance. A water-repellent, breathable fixing agent can also be used.



Existing brickwork can be cleaned prior to tinting or the tinting can emulate weathering or sooting. Brick tinting provides a much more sympathetic solution than painting or rendering that are often used to overcome mismatched bricks. Our technicians will match the colour required without using the fixing agent. The samples can then be power-washed off. Once a colour match has been made the tint is created with the fixing agent which bonds the tint permanently to the brick.



Brick and Facade Waterproofing

Water repellent surface treatment for walls suffering from penetrating damp. Prevents moisture migrating through masonry walls and brickwork façades whilst allowing the building material to breathe. Once dry our waterproofing solution is clear and does not colour the surface. However, with the inclusion of natural pigments we are able to tint and waterproof.



External Decoration

Although not offered as a stand-alone service, Newman Building Solutions offer external decoration for areas of the building that were not part of the repair. A typical example would be where repairs have been carried out to a bay window and adjacent windows and surrounds look dilapidated.





Structural Repair
 Masonry Repair
 Foundation Repair
 Concrete Repair
 Balconies & Walkways
 Total Wall Care
 Guarantees

twistfix

THORHELICAL®

Steadfast
 SPECIALIST PRODUCTS LTD

Weber
 SAINT-GOBAIN

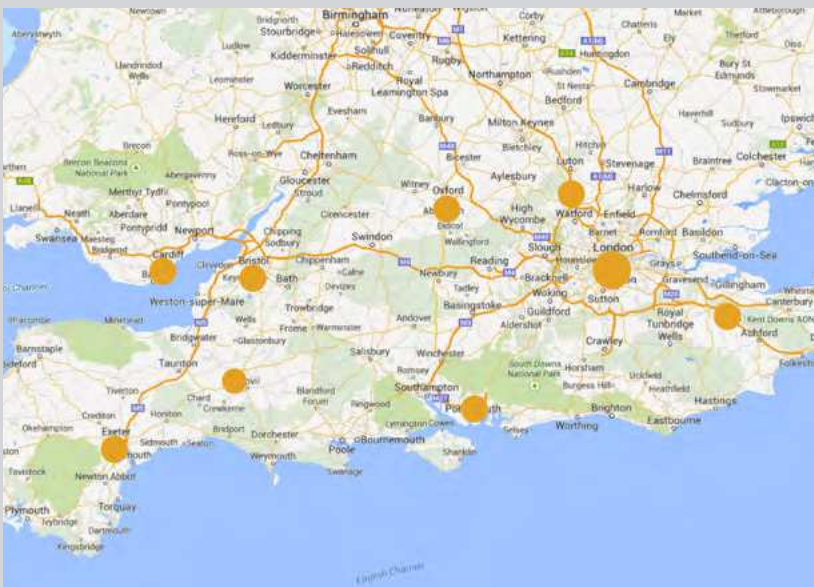
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CONTRACTORS HEALTH & SAFETY ASSESSMENT SCHEME
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 www.has.co.uk



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