BINGHAM : HALL ASSOCIATES
Civil and Environmental Engineering Consultants

Agricultural Building Survey & Structural Assessment

Lodge Barn
Cromer Road
Hainford
Norfolk

Client: Mr Matthew Lake

May 2017 – Version 1

Oakleigh, Connaught Road, Attleborough, Norfolk NR17 2BW
Tel: 01953 456806 Fax: 01953 451907 Email: office@binghamhall.com www.binghamhall.com

Document Control Sheet

Project Name:	Lodge Barn, Cromer Road, Hainford, Norfolk NR10 3AT
Project Reference:	2900
Report Title:	Agricultural Building Survey & Structural Assessment

	Name	Position	Signature	Date
Prepared By:	Andrew Westby	Director		25 May 2017
Approved By:	Andrew Bingham	Managing Director		25 May 2017
For and on behalf of Bingham Hall Associates				

Contents

Appendices

1 Introduction

1.1 Bingham Hall Associates are instructed to undertake a visual inspection of an agricultural building at Lodge Barn, Cromer Road, Hainford, Norfolk NR10 3AT. It is proposed that the existing barn structure is to be renovated for conversion into a residential dwelling.

1.2 We are instructed to report upon the structural condition of the barn and its extensions and provide advice upon its suitability for conversion, including the possibility of reducing the internal floor level, which is currently elevated. This is sought to provide adequate headroom for a second storey, thus making the conversion a more attractive proposition.

1.3 This information contained herein will be used in connection with a proposed planning application. Our inspection and report is therefore limited to consideration of this aspect only.

1.4 We have not inspected woodwork or any other areas of the property that are covered, unexposed or otherwise inaccessible. We are therefore unable to confirm that any such areas of the property are free from defect.

1.5 All observations are made with the front of the subject premises described as viewed from the adjoining paddock and access roadway which leads to/from Cromer Road. It therefore follows that the front of the building is the long elevation containing a dominant opening which faces north, whilst the ridge of the roof lies in an east-west orientation. Further, a historic single storey offshoot abuts the rear elevation, whilst a later garage extension abuts the western end and a ramped access to an end door opening is to the east. The existing dwelling house on the site is located beyond the rear left corner of the barn.

1.6 It is important to note that this report does not constitute a comprehensive Building Survey, neither does it constitute a full Structural Survey. This is a report generated from a cursory visual inspection of the affected section of the premises in response to a specific matter for consideration and no invasive investigations or opening up has been undertaken, except where specifically referenced herein.

1.7 The weather at the time of inspection was moderately cool, bright and dry.

1.8 Our inspection was limited to some degree on account of a small quantity of stored sundry belongings within the building and more particularly the extensions. The extent of our inspection was, however, sufficient to allow meaningful and representative opinions to be formed and reported herein.

2 Location

2.1 The premises are located at Lodge Barn, Cromer Road, Hainford, Norfolk NR10 3AT and centred on grid reference TG 21795 18535, as shown in Figures 2.1 and 2.2, below.

Figure 2.1: Site Location Plan

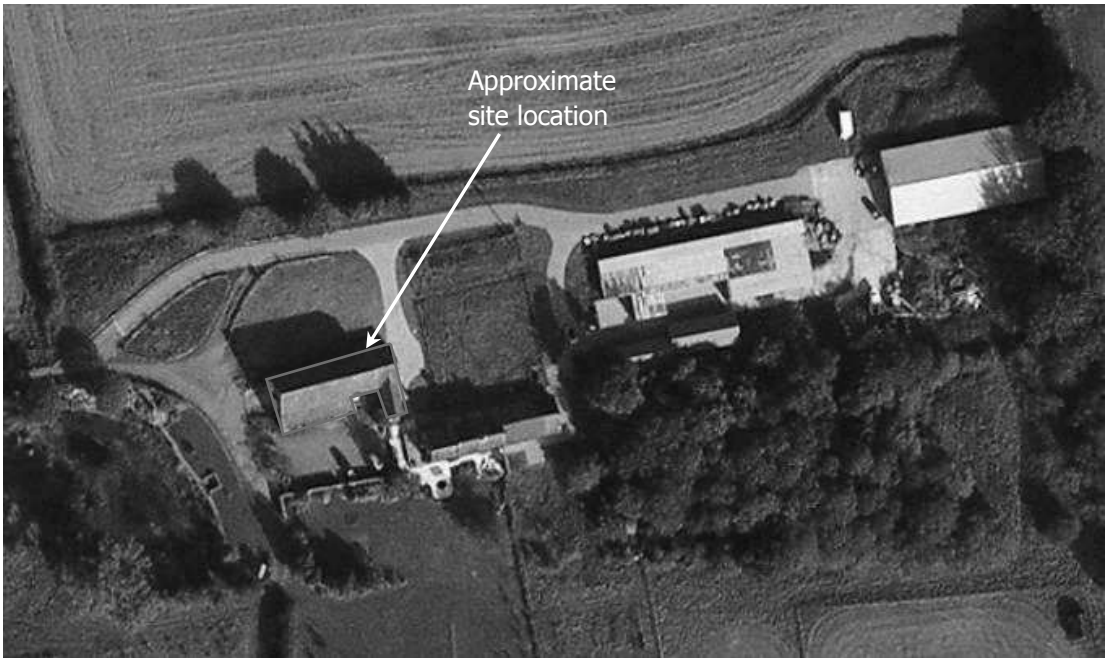


Figure 2.2: Site Plan: Aerial View

3 Description

3.1 The subject agricultural building occupies a large plot located approximately 450m to the east of Cromer Road, Hainford. The front of the building faces north whilst to the south east is an existing dwelling house. Further agricultural buildings are located to the east.

3.2 The building is bounded by arable agricultural land to the front (north) and left side (east) and by a paved yard laid with asphalt to the rear (south). To the right side (west) an access ramp leads from the building and joins a private roadway which leads to/from Cromer Road (A140). The access road initially runs through further arable land but also passes through a wooded copse prior to reaching the main road.

3.3 The date of construction of the main section of the building is not known but is evidently of some age and we estimate it to be at least around 150 years old. A single storey lean-to offshoot is appended to the rear elevation, occupying approximately 75% of the length from the left hand end. This section appears likely to have been constructed at the same time as the main barn.

3.4 A further extension has been appended to the left hand end of the barn, apparently around 40-50 years ago. This comprises a double garage with vehicular doors in the left hand elevation which is further extended to the rear to form a store.

3.5 The main barn was largely empty at the time of our inspection, although the rear offshoot was in use for the storage of sundry belongings. The left hand extension was in use as a garage/workshop and was fairly congested with associated materials and tools whilst its rear projection was also in use for the storage of general belongings.

3.6 The main barn is 18.3 metres long and 6.3 metres wide, measured internally, and is formed by solid brickwork walls supporting a timber duo-pitched roof structure clad with corrugated fibre cement sheeting. The sheets are fixed to lightweight secondary purlins which overlay the original common rafters (3x3”/75x75mm), which in turn are supported by a pair of original timber purlins (4x3”/100x75mm) to each pitch. The original tiling battens have been removed, presumably when the current sheeting was installed, but otherwise the underlying timber roof structure appears original.

3.7 The principal roof structure comprises seven pairs of opposed principal rafters (6x4”/150x100mm) pitched at around 45 degrees, which support the purlins, tied with collars (4x2”/100x50mm) set just below the level of the upper purlins. Alternate rafter pairs are tied out at eaves level with substantial hewn timber sections across the building (approx. 8x8”/200x200mm) whilst further ties are incorporated into the gable walls at each end. This arrangement suggests the wallplates act as load-bearing elements in sustaining the lateral thrust of the rafters between the ties.

3.8 The roof structure is braced with diagonal timbers located between half of the principal rafters, albeit only extending between eaves level and the lower purlins.

3.9 The front and rear walls of the barn are constructed in 13" (330mm) thick brickwork, largely set in lime mortar and which extend to an eaves height of approximately 4.0m above the internal floor level. This is itself raised above the prevailing external ground level by around one metre. The gable walls are similarly constructed to the level of the lower purlins (approximately 5m above floor level) with the gable peak above evidently constructed in 9" (225mm) thick brickwork and extending to a ridge height of approximately 7.2 metres above floor level.

3.10 The principal front door opening is around 3.6m wide and occupies the centre-left section of the elevation, extending to the underside of the roof structure. The original doors no longer appear present and the opening has been infilled in the past with modern profiled steel sheeting internally and galvanised corrugated steel sheeting externally, presumably fixed to a timber framework. A small high level door opening within the infill sheeting remains operable. Substantial brickwork piers are provided to each side of the door opening.

3.11 To the right hand end, a pair of sliding doors extending to eaves level are provided in the form of steel framing clad with modern profiled steel sheeting. The doors open to a width of around 4 metres onto a concrete access ramp descending from internal floor level to external ground level. A small opening in the gable peak brickwork, located centrally above the door opening, has been crudely infilled with sheet materials.

3.12 A large archway is present in the rear wall of the barn, located immediately opposite the door opening in the front wall and opening to a span of 3.2 metres and extending to a height of around 2.4 metres to the level of the arch spring. The arch is formed in a 9" (225mm) thick brick soldier course and rises by around a further 1.2 metres to its crown.

3.13 The archway provides internal access to the rear lean to offshoot which, as alluded to above, appears contemporary with the main barn. The extension is around 14.5 metres long, extending from the right hand end of the barn, and projects around 3 metres from the main rear wall with the rear wall extending to an eaves level of 2.1 metres above the internal floor level.

3.14 The extension roof is constructed similarly to the main barn roof with fibre cement corrugated sheeting having replaced the original tiles mounted on secondary lightweight purlins bearing on the original common rafters (3x3"/75x75mm). These in turn are supported by a pair of principal purlins (5x4"/125x100mm). The purlins are supported by three intermediate hewn timber tie beams (approx. 7x5"/175x125mm) from which vertical (rear) and raking (front) struts are raised to support the purlins.

3.15 The rear wall of the extension extends down to the rear paved yard level, the lower section being in the form of a flintwork plinth. The wall contains a number of openings, including two personnel doors to the right hand and centre, the latter of which is boarded up, a larger full height opening approximately 2.2 metres wide located opposite the archway from the main barn and two window openings between the respective doors, the central of which has been partially boarded over. The operable personnel door and larger opening are both provided with a flight of concrete steps extending down and providing access to the paved yard area at the rear.

3.16 To the left hand end of the barn a double garage has been constructed, projecting around 5.5 metres from the left flank wall and occupying the full width of the barn. This has been further extended at right angles to the rear to form a storage area which extends around 6.5 metres to the rear and is 3.2 metres wide.

3.17 The double garage is effectively two single garages by virtue of a dividing spine wall, with each garage provided with its own single 'up and over' vehicular door and associated concrete ramp descending to the prevailing external ground level. The store building was not fully entered but appears again to be divided into two reasonably equal sized sections, each provided with a personnel door with associated steps to ground level and window opening in the left flank wall.

3.18 Only the front garage unit was entered and this revealed single leaf brickwork wall construction with appropriately positioned piers supporting what is assumed to be a timber gang-nail trussed roof, albeit this was concealed by ceiling boards. This form of construction is presumed to prevail throughout this section of the building. The garage and store roofs are both clad with concrete pantiles. The garage ridge is parallel to and broadly in line with the main barn ridge and thus oriented in and east to west direction, whilst the store roof is oriented perpendicularly.

3.19 Rainwater goods comprise a mix of fibre cement gutters and downpipes to the main barn and rear offshoot, supplemented with plastic materials on the garage and store sections and where past repairs have been implemented.

3.20 A single trial hole was excavated adjoining the left side of the front wall of the barn to expose the foundations and understand the underlying soil type. The excavation recorded a flint cobble foundation with no outstand extending to a depth of 400mm below ground level. The foundation bears onto a medium dense, orange-brown slightly clayey silty sand material.

3.21 Salient photographs of the building and its surroundings are included in **Appendix A.**

4 Observations

Roof

4.1 Externally, the main roof structure presents a good, even alignment with little significant distortion in the ridge and even sloping in both main pitches and the 'catslide' arrangement of the rear offshoot. The roof sheets appear generally to be in a satisfactorily condition and fully trimmed with proprietary ridge and verge components. Given the age of the building, the sheeting panels are considered very likely to include asbestos containing materials (ACM's) and appropriate care should be exercised when handling the sheets, especially any which are damaged.

4.2 The roof sheeting is generally free from damage and reasonably clean, although some slight accumulations of moss and other vegetative growth were recorded. Notwithstanding the condition of the roof sheeting, however, we understand the existing coverings are to be replaced as part of the proposed renovation works.

4.3 The tiled roof construction of the left hand end garage and associated store is of more recent origin and remains in a good condition with no significant distortion, distress or deterioration evident.

4.4 The principal rainwater goods, comprising fibre cement gutters and downpipes, will again doubtless include ACM's by virtue of their age and appropriate care will be required during their recommended replacement. The front and rear barn gutters discharge to downpipes to the respective right hand corners of the barn and then presumably to soakaways. The rear gutter runs via the lower eaves level of the rear offshoot, although the connection around the left hand end of the offshoot has been crudely formed.

4.5 Ideally, the aforementioned rainwater goods require replacement with modern plastic materials, this eradicating the presence of ACM's. Given the roof areas concerned, it is also considered prudent to provide additional rainwater downpipes and associated soakaways to serve each end of the barn.

4.6 Rainwater goods serving the garage and store appended to the left hand end of the barn are of modern plastic construction and generally in a good condition. There is, however, no downpipe serving the front gutter of the garage and this needs to be reinstated and connected to a suitably located soakaway. The downpipe serving the left side of the store discharges to the adjoining paved surface but should ideally be piped away from the building and discharge to a soakaway.

4.7 The downpipe serving the right side of the store and rear of the garage discharges to the ground adjoining the building foundations. This has led to softening of the underlying soils over time, leading to apparent foundation movement and structural cracking, as discussed in para. 4.24. This issue should be mitigated by piping the downpipe to discharge to a soakaway located at least 5 metres from any building.

4.8 Viewed internally, the principal roof timbers appear in good condition and remain serviceable for continued use. Their viability is borne out in the evident good condition and alignment of the current roof sheeting. Replacement sheeting should take the form of composite profiled steel sheeting panels or something similar, where the self-weight will be no greater than the existing sheeting. Replacement with a traditional tiled covering may compromise the existing structure and would require further detailed analysis to confirm its continued integrity.

4.9 The addition of further bracing members should be considered, the current provision extending between eaves level and the lower purlin only. This could be undertaken by the installation of additional diagonal timbers in the higher sections of the roof structure. Alternatively, sheathing plywood or OSB sheeting could be installed to the underside of the common rafters, either partially or throughout, as part of a vaulted ceiling provision, to act as diaphragms to prevent any tendency towards racking of the roof structure.

4.10 The lean-to roof structure of the rear offshoot appears entirely competent for continued use but similar comments apply in regard to enhancing the bracing provision.

4.11 Whilst not inspected in detail due to a lack of access, there is nothing evident to suggest any distress in the roof structures of the garage and store. As such, there is no reason to suggest that these elements may not continue to perform satisfactorily.

Walls

4.12 The external walls of the main barn are generally in a sound condition with the original handmade bricks typically laid in lime mortar. A cursory plumb survey revealed no evidence of significant lateral displacement which might otherwise be indicative of roof spread or foundation movement.

4.13 View internally, the front wall exhibits various small areas of newer replacement brickwork set in sand/cement mortar, including infill to former 'slit' windows, together with some patched sand/cement render repairs, presumably to make good weathered brickwork. Minor separation cracking is evident to each of the front corners, tapering towards eaves level, although this may be simply repaired by repointing and the installation of remedial ties, where appropriate.

4.14 The rear wall has similarly been subject to past brickwork repair and patched render. The arch ring above the rear dominant opening appears to have suffered little significant distortion and presents an even profile. It is likely, however, that it has settled slightly at some stage given the minor cracking present above each arch spring.

4.15 Diagonal tapering wall cracking up to around 12mm wide is present in the right hand 25% of the rear wall emanating from floor level and extending towards the right hand corner of the building. This could be indicative of being the result of slight foundation movement at the rear right corner, in all probability attributable to ground softening due to rainwater ingress, either due to the soakaway being located too close to the building or being ineffective or non-existent.

4.16 The cracking noted, whilst of modest proportions, should be suitable for simple repair by repointing and the introduction of masonry bed joint reinforcement to restore structural integrity provided mitigation measures to prevent further foundation movement are also implemented. This would involve the provision of a new soakaway for roof water drainage located at least 5 metres away from the building structure.

4.17 Further vertical cracking is evident in the rear left corner wall junction up to 10mm wide, which appears to be of some age. This appears to have been subject to previous remedial tying in the form of a 25mm diameter steel bar installed across the building close to the left hand gable wall some 2.2 metres above floor level. The left hand gable wall is otherwise in a satisfactory condition.

4.18 The right hand gable wall includes the principal operable opening into the barn which is surmounted by a concrete lintel which appears satisfactory. The low level brickwork in the returns to either side of the door opening has been subject to moderate weathering and requires repointing in lime based materials. At higher levels the brickwork appears to be in a satisfactory condition.

4.19 External inspection of the main barn walls revealed broadly similar conditions although the internal cracking to the front right corner wall junction is reflected slightly offset from the corner in the front elevation. This cracking should again be repaired by repointing and the introduction of bed joint masonry reinforcement. A limited inspection of the rear wall from within the rear offshoot revealed no additional areas of concern. An additional crack is evident in the right hand gable wall above the front end of the door opening, indicative of slight deflection of the lintel.

4.20 The rear offshoot brickwork is generally in a satisfactory condition aside from some minor cracking above and beneath the left hand window opening in the rear elevation. The location of this, close to the centre of the elevation, and its modest proportions suggest the cracking is the result of normal thermal effects which should not be considered structurally significant.

4.21 Internally, the left end wall of the offshoot is rendered and this exhibits modest cracking, in all probability consistent with the use of hard sand/cement materials rather than lime based materials, which are more tolerant of slight movements and consistent with the more pliable underlying construction. It is recommended that this render is removed and replaced with more appropriate materials if required. There is no evidence of consistent damage in the underlying masonry.

4.22 The brickwork forming the left gable peak has, however, suffered a significant level of weathering and mortar loss and thus requires repointing using suitable lime based materials.

4.23 No evidence of distress was noted within the garage and the construction appears robust and appropriate for its current use, with adequate buttressing from brickwork piers. Further enhancement would be required, however, if this section of the building were ever considered for incorporation into the habitable space.

4.24 The rear store is of similar construction and in principle remains suitable for continued similar use. There is, however, significant cracking to the right flank wall consistent with a moderate degree of foundation movement. The movement is consistent with the location of the rainwater downpipe serving this elevation and it appears that water discharging direct to the ground and close to the foundations at this point has led to softening of the underlying soils over time. In turn this has allowed downwards movement of the foundations and consequent cracking to the overlying wall.

4.25 Given that the subsidence movement has probably been ongoing for some considerable period of time, it is unlikely that mitigation measures (i.e. the provision of a suitably located soakaway) alone will not suffice as the ground conditions are doubtless too deteriorated. It is therefore likely that localised underpinning of the affected wall and possible associated reconstruction of the adjoining floor slab will be required. Mass concrete underpinning installed incrementally and extending to competent soils at depth should be used, followed by crack stitching incorporating bed joint masonry reinforcement or localised wall reconstruction, if warranted.

4.26 Whilst this damage is structurally significant, it is local in nature and has resulted from an identifiable extraneous cause. As such, this damage should not be considered to imply the building as a whole is not suitable for conversion to habitable use.

4.27 The trial excavation opened up to the front of the building revealed shallow foundations by current standards but these have evidently performed satisfactorily to date, with the exception of the localised extraneous factors discussed above. There is no reason to suggest that conversion to habitable use will lead to any significant change in loading. The underlying soils recorded represent a competent bearing stratum.

Floors

4.28 The ground floor slab is evidently not original and has for some reason (unknown) been raised by around one metre above the prevailing external ground level. This would have required the deposition of a significant quantity of imported fill material prior to the formation of the raised concrete floor slab.

4.29 The placement of the fill material was clearly undertaken in a well controlled manner as there is no evidence of lateral displacement or damage in the lower reaches of the perimeter walls consistent with over compaction. Conversely, the infill material has clearly been adequately compacted as the slab is free from significant cracking and does not exhibit any undue hollowness where sounded

4.30 Given the above, it is clear that the concrete floor slab, whilst of unknown thickness, is evidently of a robust form and well constructed.

4.31 Notwithstanding this, the intention is to remove the existing floor slab and replace it at a level some 300mm lower to allow the construction of a second storey within the existing barn profile whilst maintaining adequate headroom beneath the roof ties which will remain in-situ. Given the existing infill has evidently performed satisfactorily and provided that remaining is not unduly disturbed during the reconstruction, there is no reason why this action should not be entirely successful.

4.32 We envisage approximately half of the infill will require removal to accommodate the reduced finished floor level, together with the additional floor construction depth required to provide insulation and finishes consistent with a change to habitable use.

4.33 Thresholds providing access to the building will require adjustment consistent with the revised, lower floor levels. This should present no particular difficulties given that the existing arrangements were evidently put in place when the floor was originally raised and adjustment will entail a simple reversal of the previous measures.

4.34 The condition of the garage and floors again appears satisfactory albeit the store and rear garage floors could not be fully inspected. It appears the proposal is to also lower the level of these floor slabs to coincide with the main barn floor and therefore the same comments expressed above apply.

5 Conclusions

5.1 On the basis of our inspection, we are satisfied that the existing building represents a viable proposition for conversion to a residential dwelling with no significant structural intervention required if it were to remain in its current form.

5.2 It remains, however, that the client would prefer to introduce a second storey to the existing building to make the project a more viable and attractive proposition. This move is, however, currently effectively precluded due to the configuration of the existing roof structure. In order to maintain the current roof structure, it is proposed to lower the internal floor level accordingly, allowing the construction of an upper storey whilst maintaining headroom beneath the existing roof ties.

5.3 Lowering of the floor is viable, firstly because there is every indicator that the current floor level is not original and that the floor level has been raised by around one metre at some stage in the past. Furthermore, this was evidently well executed given the lack of damage or settlement in the slab such that the existing infill material may sensibly be re-used as a base for the new floor provided it is not unduly disturbed and recompacted as required.

5.4 The existing roof structure is in a satisfactory condition and we see no reason why this situation should not prevail into the future. The existing roof sheeting will be removed and we recommend replacement materials should comprise modern profiled composite sheets to ensure that the self-weight loading does not exceed that imposed by the current sheeting. Replacement with traditional tiling would require a detailed assessment of the capacity of the roof structure, although from cursory assessment it remains quite possible that the existing structure would be essentially adequate.

5.5 Rainwater goods are recommended for renewal to remove the presence of ACM's and improve the aesthetics of the building. Drainage works should include the provision of adequate soakaways, located at least 5m from any building.

5.6 The walls present in a generally good condition and importantly exhibit no evidence of lateral displacement consistent with roof spread or similar damaging structural movements. Whilst the front wall in particular is provided with a dominant opening leading potentially to lateral weakness, the provision of substantial piers to each side of the opening has been successful in restraining the free ends of the wall.

5.7 Localised repairs to the brickwork required includes repointing and localised crack repairs including the provision of bed joint masonry reinforcement and ties where appropriate. The use of products from the 'Helifix' range, or similar, is recommended and illustrative details of the products and repair methods are included in **Appendix B.**

5.8 The localised subsidence damage to the right flank wall of the rear store building requires a more extensive method of repair, as discussed in para. 4.25. Once the recommended works have been completed, there is no reason to suggest any underlying problem will persist.

5.9 In summary, the building as a whole presents in a good order and has performed in a satisfactory manner for a considerable period of time. The building structure is entirely suitable for conversion to habitable use and the change of use will not have any significant impact on the loading regime imposed on the building. As such there appears no reason why the building should not continue to perform in an acceptable manner.

Appendix A: Photographs

1. Front elevation

2. Rear elevation

3. Right hand end elevation

4. Left hand end elevation and garage extension

5. Rear store extension to garage

6. External cracking to right side of store

7. General view of barn roof structure

8. Internal view of right hand end wall

9. Typical internal view of front wall showing infilled door opening

10. Internal view of left hand end wall

11. Cracking to rear left corner of barn showing remedial tie rod

12. Archway to rear elevation through to offshoot

13. Internal cracking to right hand end of rear wall

14. Rear offshoot roof looking towards right hand end

15. Cracking to internal render of rear offshoot left hand wall

16. Weathering and mortar loss to gable peak of rear offshoot left hand wall

Appendix B: 'Helifix' Product Data Sheets

Crack Stitching

- **CS01** – Cavity Wall using HeliBars
- **CS02** – Rendered Cavity Wall using HeliBars
- **CS03** – Crack Near a Corner in a Cavity Wall using HeliBars
- **CS04** – Crack Near a Corner in a Cavity Wall using CemTies
- **CS05** – Solid Wall using HeliBars
- **CS06** – Rendered Solid Wall using HeliBars
- **CS07** – Solid Wall using CemTies
- **CS08** – Crack Near a Corner in a Solid Wall using HeliBars
- **CS09** – Crack Near a Corner in a Solid Wall using CemTies
- **CS10** – Crack Near a Corner in a Stone Wall using HeliBars
- **CS11** – Crack Near a Corner in a Stone Wall using CemTies
- **CS12** – Internal and External Cracks Near a Corner in a Stone Wall using CemTies
- **CS13** – Cracks at Joins in Solid and Cavity Walls using HeliBars
- **CS14** – Repair of a Crack Near an Internal Corner in a Solid Wall using HeliBars
- **CS15** – Stitching a cracked solid wall using SockFix
- **CS16** – Stitching a cracked rubble filled wall using SockFix
- **CS17** – Reconnecting a Cracked Internal Corner of a Solid Wall using HeliBars

HELIFIX
SUSTAINABLE STRUCTURAL SOLUTIONS

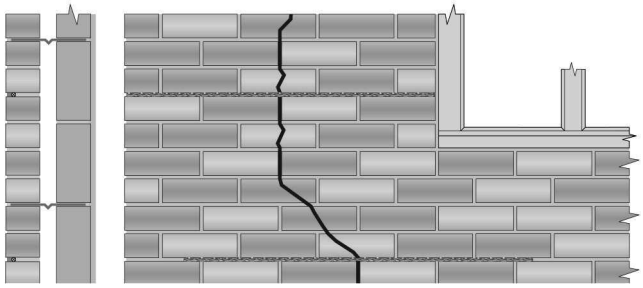
Tel: 020 8735 5200 Fax: 020 8735 5201
email: sales@helifix.co.uk
www.helifix.co.uk

CS01 Crack Stitching a Cavity Wall using HeliBars

METHOD STATEMENT

1. Using a twin-bladed, diamond-tipped wall chaser and vacuum attachment, cut slots into the horizontal mortar joints, to the specified depth and at the required vertical spacing. Ensure that NO mortar is left attached to the exposed brick surfaces in order to provide a good masonry/grout bond.
2. Remove ALL dust and mortar from the slots and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the slot is damp or primed prior to commencing step 5.
3. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun CS.
4. Fit appropriate mortar nozzle.
5. Inject a bead of HeliBond grout, approx. 15mm deep, into the back of the slot.
6. Push the 6mm HeliBar into the grout to obtain good coverage.
7. Inject a second bead of HeliBond grout over the exposed HeliBar and iron it into the slot using a finger trowel. Inject additional HeliBond as necessary, leaving 10-15mm for new pointing.
8. Point up the remaining slot with a suitable matching mortar and make good the crack using an appropriate Helifix bonding agent depending on the width of the crack.
9. Clean tools with clean, fresh water.

N.B. Pointing may be carried out as soon as is convenient after the HeliBond has started to gel.



RECOMMENDED TOOLING

For cutting slots up to 40mm deep .....Twin-bladed cutter with vacuum attachment

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For injection of HeliBond into slots.....Helifix Pointing Gun CS with mortar nozzle

For smoothing pointing.....Standard finger trowel

Specification Notes

The following criteria are to be used unless specified otherwise:

A. Depth of slot into the masonry to be 25mm to 40mm.

B. Height of slot to be equal to full mortar joint height, with a minimum of 8mm. For thin mortar joint specifications refer to the Helifix Technical Dept.

C. HeliBar to be long enough to extend a minimum of 500mm either side of the crack or 500mm beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.

D. Normal vertical spacing is 450mm (6 brick courses).

E. Where a crack is less than 500mm from the end of a wall or an opening the HeliBar is to be continued for at least 100mm around the corner and bonded into the adjoining wall or bent back and fixed into the reveal, avoiding any DPC.

F. In hot conditions ensure the masonry is well wetted or primed to prevent premature drying of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot, or priming with HeliPrimer WB, should be carried out just prior to injecting the HeliBond grout.

G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

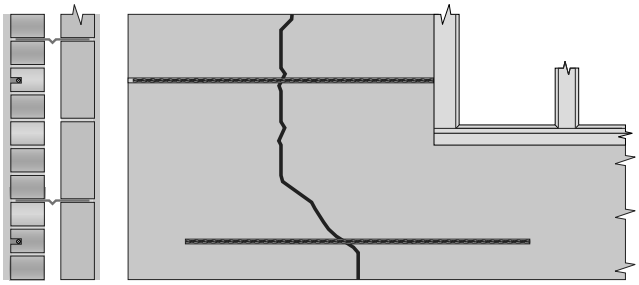
- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS02 Crack Stitching a Rendered Cavity Wall using HeliBars

METHOD STATEMENT

1. Using a twin-bladed, diamond-tipped wall chaser with vacuum attachment, cut horizontal slots into the brickwork to the specified depth and at the required vertical spacing.
2. Remove ALL dust and mortar from the slots and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the slot is damp or primed prior to commencing step 5.
3. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun CS.
4. Fit the appropriate mortar nozzle.
5. Inject a bead of HeliBond grout, approx. 15mm deep, into the back of the slot.
6. Push the 6mm HeliBar into the grout to obtain good coverage.
7. Inject a second bead of HeliBond grout over the exposed HeliBar and iron it into the slot using a finger trowel. Inject additional HeliBond as necessary, leaving 10-15mm for making good the render.
8. The crack within the wall should be weather-proofed using an appropriate Helifix bonding agent e.g. HeliBond or CrackBond, depending on the width of the crack and the surface made good or left ready for any decoration.
9. Clean tools with clean, fresh water.

N.B. Making good of the render may be carried out as soon as is convenient after the HeliBond has started to gel.



RECOMMENDED TOOLING

For cutting slots up to 40mm deep .....Twin bladed cutter with vacuum attachment

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For injection of HeliBond into slots.....Helifix Pointing Gun CS with mortar nozzle

For smoothing pointing.....Standard finger trowel

Specification Notes

The following criteria are to be used unless specified otherwise:

A. The slot in the masonry is to be 25mm to 40mm, **plus** the thickness of the render, by 10mm high.

B. HeliBar to be long enough to extend a minimum of 500mm either side of the crack or 500mm beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.

C. Normal vertical spacing is 450mm (6 brick courses).

D. Where a crack is less than 500mm from the end of a wall or an opening the HeliBar is to be continued for at least 100mm around the corner and bonded into the adjoining wall or bent back and fixed into the reveal, avoiding any DPC.

E. In hot conditions ensure the masonry is well wetted or primed to prevent premature curing of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot, or priming with HeliPrimer WB, should be carried out just prior to injecting the HeliBond grout.

F. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

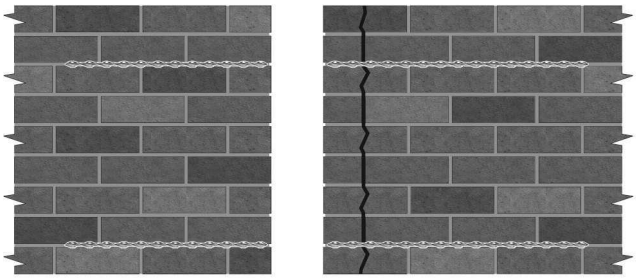
- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS03 Repair of a Crack Near a Corner in a Cavity Wall using HeliBars

METHOD STATEMENT

1. Using a twin-bladed, diamond-tipped wall chaser with vacuum attachment, cut slots into the horizontal mortar joints to the specified depth and at the required vertical spacing. Ensure that NO mortar is left attached to the exposed brick surfaces in order to provide a good masonry/grout bond.
2. Remove ALL dust and mortar from the slots and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the slot is damp or primed prior to commencing step 6.
3. Cut the 6mm HeliBar to the required length and bend to fit in the slots.
4. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun CS.
5. Fit the appropriate mortar nozzle.
6. Inject a bead of HeliBond grout, approx. 15mm deep, into the back of the slot.
7. Push the 6mm HeliBar into the grout to obtain good coverage.
8. Inject a second bead of HeliBond grout over the exposed HeliBar and iron it into the slot using a finger trowel. Inject additional HeliBond as necessary, leaving 10-15mm for new pointing.
9. The crack within the wall should be weather-proofed using an appropriate Helifix bonding agent e.g. HeliBond or CrackBond, depending on the width of the crack and the surface made good or left ready for any decoration.
10. Clean tools with clean, fresh water.

N.B. Pointing may be carried out as soon as is convenient after the HeliBond has started to gel.



RECOMMENDED TOOLING

For cutting slots up to 40mm deep .....Twin bladed cutter with vacuum attachment

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For injection of HeliBond into slots.....Helifix Pointing Gun CS with mortar nozzle

For smoothing pointing.....Standard finger trowel

Specification Notes

The following criteria are to be used unless specified otherwise:

A. Depth of slot into the masonry to be 35mm to 40mm.

B. Height of slot to be equal to full mortar joint height, with a minimum of 8mm. For thin mortar joint specifications refer to the Helifix Technical Dept.

C. HeliBar to be long enough to extend a minimum of 500mm either side of the crack or 500mm beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.

D. Normal vertical spacing is 450mm (6 brick courses).

E. Where a crack is less than 300mm from the end of a wall or an opening the HeliBar is to be continued for at least 250mm around the corner and bonded into the adjoining wall.

F. In hot conditions ensure the masonry is well wetted or primed to prevent premature curing of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot, or priming with HeliPrimer WB, should be carried out just prior to injecting the HeliBond grout.

G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

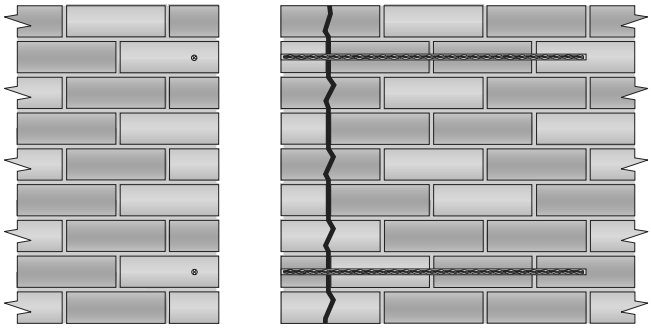
If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS04 Repair of a Crack Near a Corner in a Cavity Wall using CemTies

METHOD STATEMENT

1. Mark positions for holes on the outer face of the wall.
2. Drill a 16mm clearance hole through the outer wall and to the required depth.
3. Clean out ALL dust from the hole and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the hole is damp or primed prior to commencing step 8.
4. Attach the required length of CemTie pinning nozzle to the gun.
5. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun HD.
6. Pump grout to fill the nozzle.
7. Wind the CemTie into the nozzle and ensure that it is fully covered in grout.
8. Insert the nozzle to the full depth of the drilled hole and pump the grout.
9. Make good all holes at the surface with matching mortar. The crack within the wall should be weather-proofed using an appropriate Helifix bonding agent e.g. HeliBond or CrackBond, depending on the width of the crack and the surface made good or left ready for any decoration.
10. Clean tools with clean, fresh water.



RECOMMENDED TOOLING

For drilling .....SDS Rotary hammer drill 650/700w

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For insertion of the CemTies.....Helifix Pointing Gun HD with pinning nozzle

Specification Notes

The following criteria are to be used unless specified otherwise:

A. CemTies are to be installed at a vertical spacing of 450mm.

B. CemTies are to extend at least 500mm past the crack.

C. Depth of hole to be CemTie length +25mm

D. CemTies are to be installed within the centre third of the wall.

E. If cracking has occured on both elevations consider using HeliBar crack stitching around the corner. If CemTies have to be used, they should be staggered between each elevation.

F. In hot conditions ensure the masonry is well wetted or primed to prevent premature curing of the HeliBond due to rapid de-watering. Ideally additional wetting of the hole, or priming with HeliPrimer WB, should be carried out just prior to inserting the CemTie.

G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the hole must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

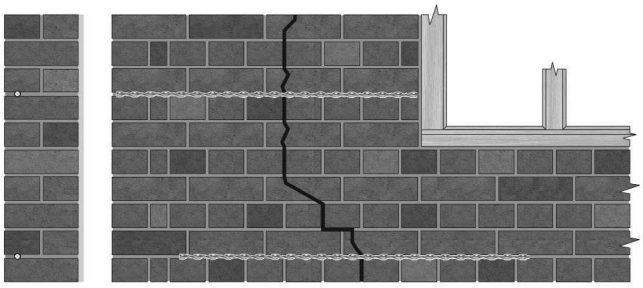
- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS05 Crack Stitching a Solid Wall using HeliBars

METHOD STATEMENT

1. Using a twin-bladed, diamond-tipped wall chaser with vacuum attachment, cut slots into the horizontal mortar joints to the specified depth and at the required vertical spacing. Ensure that NO mortar is left attached to the exposed brick surfaces in order to provide a good masonry/grout bond.
2. Remove ALL dust and mortar from the slots and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the slot is damp or primed prior to commencing step 5.
3. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun CS.
4. Fit the appropriate mortar nozzle.
5. Inject a bead of HeliBond grout, approx. 15mm deep, into the back of the slot.
6. Push the 6mm HeliBar into the grout to obtain good coverage.
7. Inject a second bead of HeliBond grout over the exposed HeliBar and iron it into the slot using a finger trowel. Inject additional HeliBond as necessary, leaving 10-15mm for new pointing.
8. The crack within the wall should be weather-proofed using an appropriate Helifix bonding agent e.g. HeliBond or CrackBond, depending on the width of the crack and the surface made good or left ready for any decoration.
9. Clean tools with clean, fresh water.

N.B. Pointing may be carried out as soon as is convenient after the HeliBond has started to gel.



RECOMMENDED TOOLING

For cutting slots up to 40mm deep .....Twin bladed cutter with vacuum attachment

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For injection of HeliBond into slots.....Helifix Pointing Gun CS with mortar nozzle

For smoothing pointing.....Standard finger trowel

Specification Notes

The following criteria are to be used unless specified otherwise:

A. Depth of slot into the masonry to be 35mm to 40mm.

B. Height of slot to be equal to full mortar joint height, with a minimum of 8mm. For thin mortar joint specifications refer to the Helifix Technical Dept.

C. HeliBar to be long enough to extend a minimum of 500mm either side of the crack or 500mm beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.

D. Normal vertical spacing is 450mm (6 brick courses).

E. Where a crack is less than 500mm from the end of a wall or an opening, the HeliBar is to be continued for at least 100mm around the corner and bonded into the adjoining wall or bent back and fixed into the reveal, avoiding any DPC.

F. In hot conditions ensure the masonry is well wetted or primed to prevent premature curing of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot, or priming with HeliPrimer WB, should be carried out just prior to injecting the HeliBond grout.

G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

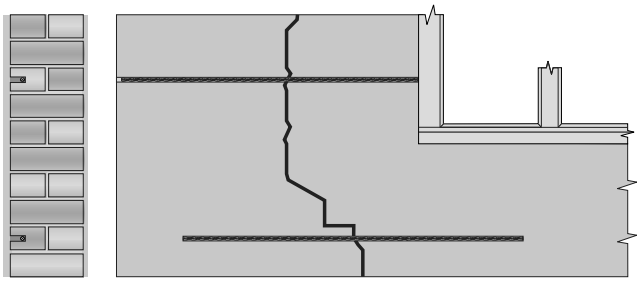
- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS06 Crack Stitching a Rendered Solid Wall using HeliBars

METHOD STATEMENT

1. Using a twin-bladed, diamond-tipped wall chaser with vacuum attachment, cut slots into the brickwork to the specified depth and at the required vertical spacing.
2. Remove ALL dust and mortar from the slots and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the slot is damp or primed prior to commencing step 5.
3. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun CS.
4. Fit the appropriate mortar nozzle.
5. Inject a bead of HeliBond grout, approx. 15mm deep, into the back of the slot.
6. Push the 6mm HeliBar into the grout to obtain good coverage.
7. Inject a second bead of HeliBond grout over the exposed HeliBar and iron it into the slot using a finger trowel. Inject additional HeliBond as necessary, leaving 10-15mm for making good the render.
8. The crack within the wall should be weather-proofed using an appropriate Helifix bonding agent e.g. HeliBond or CrackBond, depending on the width of the crack and the surface made good or left ready for any decoration.
9. Clean tools with clean, fresh water.

N.B. Making good the render may be carried out as soon as convenient after the HeliBond has started to gel.



RECOMMENDED TOOLING

For cutting slots up to 40mm deep .....Twin bladed cutter with vacuum attachment

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For injection of HeliBond into slots.....Helifix Pointing Gun CS with mortar nozzle

For smoothing pointing.....Standard finger trowel

Specification Notes

The following criteria are to be used unless specified otherwise:

A. Depth of slot into the masonry is to be 35mm to 40mm deep, **plus** the thickness of the render, by 10mm high.

B. HeliBar to be long enough to extend a minimum of 500mm either side of the crack or 500mm beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.

C. Normal vertical spacing is 450mm (6 brick courses).

D. Where a crack is less than 500mm from the end of a wall or an opening the HeliBar is to be continued for at least 100mm around the corner and bonded into the adjoining wall or bent back and fixed into the reveal, avoiding any DPC.

E. In hot conditions ensure the masonry is well wetted or primed to prevent premature curing of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot, or priming with HeliPrimer WB, should be carried out just prior to injecting the HeliBond grout.

F. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

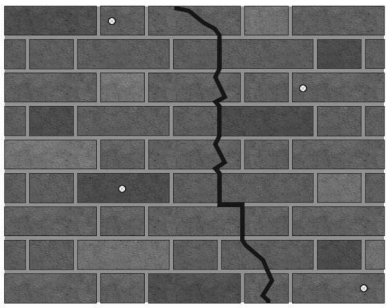
If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

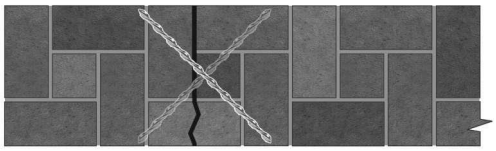
- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS07 Cross Stitching a Cracked Solid Wall using CemTies

METHOD STATEMENT

1. Mark positions for holes on the outer face of the wall.
2. Drill a 14mm clearance hole (16mm if the CemTie is longer than 450mm) at the required location and angle and to the specified depth.
3. Clean out ALL dust from the hole and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the hole is damp or primed prior to commencing step 8.
4. Attach the required length of CemTie pinning nozzle to the gun.
5. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun HD.
6. Pump grout to fill the nozzle.
7. Wind the CemTie into the nozzle and ensure that it is fully covered in grout.
8. Insert the nozzle to the full depth of the drilled hole and pump the grout.
9. Make good all holes at the surface with matching mortar and make good the crack using an appropriate Helifix bonding agent depending on the width of the crack or leave ready for any decoration.
10. Clean tools with clean, fresh water.





RECOMMENDED TOOLING

For drilling .....SDS Rotary hammer drill 650/700w

For mixing HeliBond .....3-jaw-chuck drill with mixing paddle

For insertion of the CemTies .....Helifix Pointing Gun HD with pinning nozzle

Specification Notes

The following criteria are to be used unless specified otherwise:

A. CemTies are to be installed perpendicular to the direction of the plane of the crack (e.g. in the horizontal plane for vertical cracks and in the vertical plane for horizontal cracks).

B. CemTies are to start a minimum of 225mm away from the crack.

C. Depth of hole to be CemTie length +25mm.

D. Angle of drilling to be such that the CemTies will pass through the crack within the centre third of the wall.

E. CemTies are to start from alternate sides of the crack and to be at 225mm spacing measured along the length of the crack.

F. In hot conditions ensure the masonry is well wetted or primed to prevent premature drying of the HeliBond due to rapid de-watering. Ideally additional wetting of the hole, or priming with HeliPrimer WB, should be carried out just prior to inserting the CemTie.

G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the hole must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

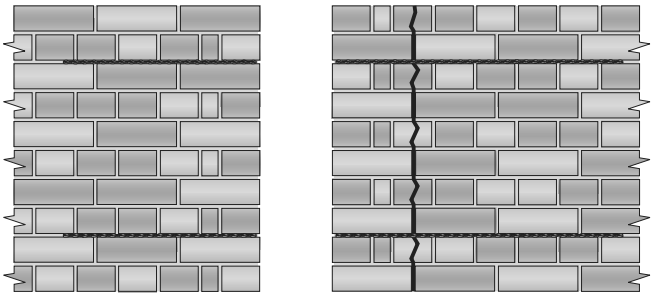
- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS08 Repair of a Crack Near a Corner in a Solid Wall using HeliBars

METHOD STATEMENT

1. Using a twin-bladed, diamond-tipped wall chaser with vacuum attachment, cut slots into the horizontal mortar joints to the specified depth and at the required vertical spacing. Ensure that NO mortar is left attached to the exposed brick surfaces in order to provide a good masonry/grout bond.
2. Remove ALL dust and mortar from the slots and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the slot is damp or primed prior to commencing step 5.
3. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun CS.
4. Fit the appropriate mortar nozzle.
5. Inject a bead of HeliBond grout, approx. 15mm deep, into the back of the slot.
6. Push the 6mm HeliBar into the grout to obtain good coverage.
7. Inject a second bead of HeliBond grout over the exposed HeliBar and iron it into the slot using a finger trowel. Inject additional HeliBond as necessary, leaving 10-15mm for new pointing.
8. The crack within the wall should be weather-proofed using an appropriate Helifix bonding agent e.g. HeliBond or CrackBond, depending on the width of the crack and the surface made good or left ready for any decoration.
9. Clean tools with clean, fresh water.

N.B. Pointing may be carried out as soon as is convenient after the HeliBond has started to gel.



RECOMMENDED TOOLING

For cutting slots up to 40mm deep .....Twin bladed cutter with vacuum attachment

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For injection of HeliBond into slots.....Helifix Pointing Gun CS with mortar nozzle

For smoothing pointing.....Standard finger trowel

Specification Notes

The following criteria are to be used unless specified otherwise:

A. Depth of slot into the masonry to be 35mm to 40mm.

B. Height of slot to be equal to full mortar joint height, with a minimum of 8mm. For thin mortar joint specifications refer to the Helifix Technical Dept.

C. HeliBar to be long enough to extend a minimum of 500mm either side of the crack or 500mm beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.

D. Normal vertical spacing is 450mm (6 brick courses).

E. Where a crack is less than 300mm from the end of a wall or an opening the HeliBar is to be continued for at least 100mm around the corner and bonded into the adjoining wall.

F. In hot conditions ensure the masonry is well wetted or primed to prevent premature curing of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot, or priming with HeliPrimer WB, should be carried out just prior to injecting the HeliBond grout.

G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

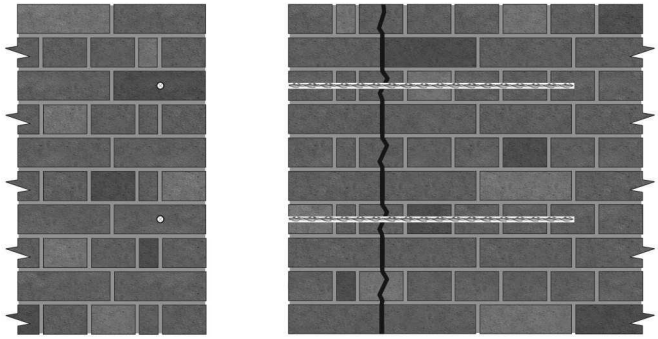
If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS09 Repair of a Crack Near a Corner in a Solid Wall using CemTies

METHOD STATEMENT

1. Mark hole positions on the outer face of the wall.
2. Drill 16mm clearance holes through the outer wall and to the required depth.
3. Clean out ALL dust from the hole and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the hole is damp or primed prior to commencing step 8.
4. Attach the required length of CemTie pinning nozzle to the gun.
5. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun HD.
6. Pump grout to fill the nozzle.
7. Wind the CemTie into the nozzle and ensure that it is fully covered in grout.
8. Insert the nozzle to the full depth of the drilled hole and pump the grout.
9. Make good all holes at the surface with matching mortar. The crack within the wall should be weather-proofed using an appropriate Helifix bonding agent e.g. HeliBond or CrackBond, depending on the width of the crack and the surface made good or left ready for any decoration.
10. Clean tools with clean, fresh water.



RECOMMENDED TOOLING

For drilling .....SDS rotary hammer drill 650/700w

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For insertion of the CemTies .....Helifix Pointing Gun HD with pinning nozzle

Specification Notes

The following criteria are to be used unless specified otherwise:

A. CemTies are to be installed at a vertical spacing of 450mm.

B. CemTies are to extend at least 500mm past the crack.

C. Depth of hole to be CemTie length +25mm.

D. CemTies are to be installed within the centre third of the wall.

E. If cracking occurs on both elevations consider using HeliBar crack stitching around the corner. If CemTies have to be used, they should be staggered between each elevation.

F. In hot conditions ensure the masonry is well wetted or primed to prevent premature curing of the HeliBond due to rapid de-watering. Ideally additional wetting of the hole, or priming with HeliPrimer WB, should be carried out just prior to inserting the CemTie.

G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the hole must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

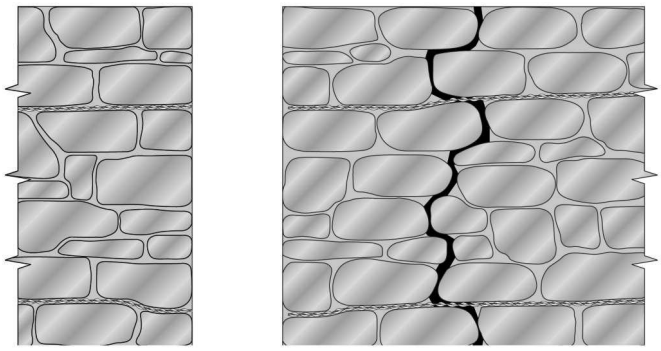
- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS10 Repair of a Crack Near a Corner in a Stone Wall using HeliBars

METHOD STATEMENT

1. Using a twin-bladed, diamond-tipped wall chaser and vacuum attachment, cut slots into the horizontal mortar joints, to the specified depth and at the required vertical spacing. Ensure that NO mortar is left attached to the exposed stone surfaces in order to provide a good masonry/grout bond. This operation may require the use of hand tools to remove the mortar due to the random nature of the stone.
2. Remove ALL dust and mortar from the slots and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the slot is damp or primed prior to commencing step 5.
3. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun CS.
4. Fit appropriate mortar nozzle.
5. Inject a bead of HeliBond grout, approx. 15mm deep, into the back of the slot.
6. Push the 6mm HeliBar into the grout to obtain good coverage.
7. Inject a second bead of HeliBond grout over the exposed HeliBar and iron it into the slot using a finger trowel. Inject additional HeliBond grout as necessary, leaving 10-15mm for new pointing.
8. Point up the remaining slot with a suitable matching mortar and make good the crack using an appropriate Helifix bonding agent depending on the width of the crack.
9. Clean tools with clean, fresh water.

N.B. Pointing may be carried out as soon as is convenient after the HeliBond has started to gel.



RECOMMENDED TOOLING

For cutting slots up to 40mm deep .....Twin-bladed cutter with vacuum attachment

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For injection of HeliBond into slots.....Helifix Pointing Gun CS with mortar nozzle

For smoothing pointing.....Standard finger trowel

Specification Notes

The following criteria are to be used unless specified otherwise:

A. Depth of slot into the masonry to be 35mm to 40mm.

B. Height of slot to be equal to full mortar joint height, with a minimum of 8mm. For thin mortar joint specifications refer to the Helifix Technical Dept.

C. HeliBar to be long enough to extend a minimum of 500mm either side of the crack or 500mm beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.

D. Normal vertical spacing is 450mm.

E. Where a crack is less than 300mm from the end of a wall or an opening the HeliBar is to be continued for at least 100mm around the corner and bonded into the adjoining wall.

F. In hot conditions ensure the masonry is well wetted or primed to prevent premature drying of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot, or priming with HeliPrimer WB, should be carried out just prior to injecting the HeliBond grout.

G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

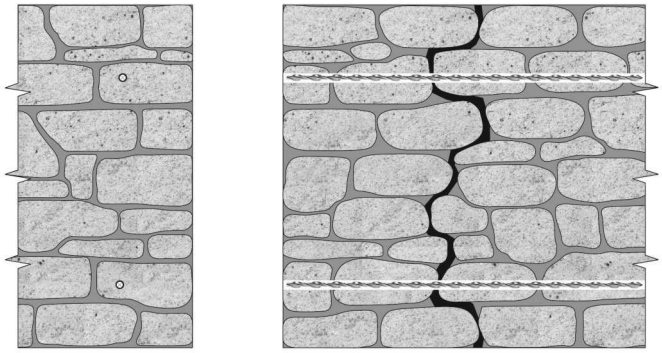
If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS11 Repair of a Crack Near a Corner in a Stone Wall using CemTies

METHOD STATEMENT

1. Mark positions for holes on the outer face of the wall.
2. Drill a 16mm clearance hole through the outer wall to the required depth.
3. Clean out ALL dust from the hole and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the hole is damp or primed prior to commencing step 8.
4. Attach the required length of CemTie pinning nozzle to the gun.
5. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun HD.
6. Pump grout to fill the nozzle.
7. Wind the CemTie into the nozzle and ensure that it is fully covered in grout.
8. Insert the nozzle to the full depth of the drilled hole and pump the CemTie and grout.
9. Make good all holes at the surface with matching mortar and make good the crack using an appropriate Helifix bonding agent depending on the width of the crack or leave ready for any decoration.
10. Clean tools with clean, fresh water.



RECOMMENDED TOOLING

For drilling .....SDS rotary hammer drill 650/700w

For mixing HeliBond .....3-jaw-chuck drill with mixing paddle

For insertion of the CemTies .....Helifix Pointing Gun HD with pinning nozzle

Specification Notes

The following criteria are to be used unless specified otherwise:

A. CemTies are to be installed at a vertical spacing of 450mm.

B. CemTies are to extend at least 500mm past the crack.

C. Depth of hole to be CemTie length +25mm.

D. Ensure the CemTies are installed into solid stone and not the mortar joints or loose rubble within the wall.

E. If cracking occurs on both elevations consider using HeliBar crack stitching around the corner. If CemTies have to be used, they should be staggered between each elevation.

F. In hot conditions ensure the masonry is well wetted or primed to prevent premature drying of the HeliBond due to rapid de-watering. Ideally additional wetting of the hole, or priming with HeliPrimer WB, should be carried out just prior to inserting the CemTie.

G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the hole must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

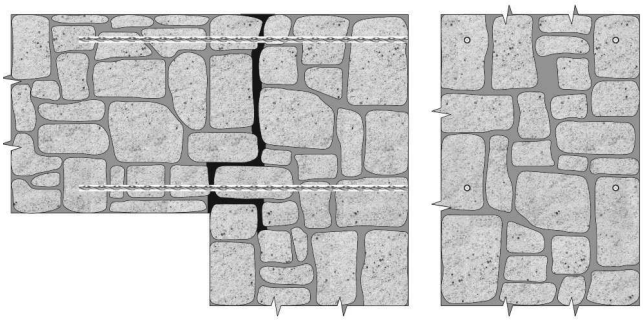
If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS12 Repair of Internal and External Cracks Near a Corner in a Stone Wall using CemTies

METHOD STATEMENT

1. Mark hole positions on the wall.
2. Drill 16mm clearance holes through the wall to the required depth.
3. Clean out ALL dust from the hole and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the hole is damp or primed prior to commencing step 8.
4. Attach the required length of CemTie pinning nozzle to the gun.
5. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun HD.
6. Pump grout to fill the nozzle.
7. Wind the CemTie into the nozzle and ensure that it is fully covered in grout.
8. Insert the nozzle to the full depth of the drilled hole and pump the grout.
9. Make good all holes at the surface with matching mortar. The crack within the wall should be weather-proofed using an appropriate Helifix bonding agent e.g. HeliBond or CrackBond, depending on the width of the crack and the surface made good or left ready for any decoration.
10. Clean tools with clean, fresh water.



RECOMMENDED TOOLING

For drilling .....SDS rotary hammer drill 650/700w

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For insertion of the CemTies.....Helifix Pointing Gun HD with pinning nozzle

Specification Notes

The following criteria are to be used unless specified otherwise:

A. CemTies are to be installed at a vertical spacing of 450mm.

B. CemTies are to extend at least 500mm past the crack.

C. Depth of hole to be CemTie length +25mm.

D. Ensure the CemTies are installed into solid stone and not the mortar joints or loose rubble within the wall.

E. If cracking occurs on both elevations consider using HeliBar crack stitching around the corner. If CemTies are to be used, they should be staggered between each elevation.

F. In hot conditions ensure the masonry is well wetted or primed to prevent premature curing of the HeliBond due to rapid de-watering. Ideally additional wetting of the hole, or priming with HeliPrimer WB, should be carried out just prior to inserting the CemTie.

G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the hole must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

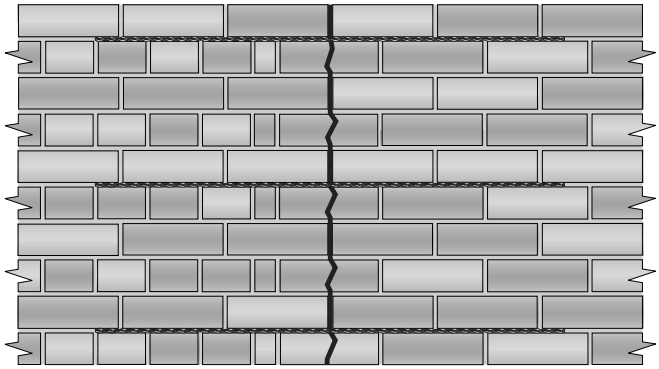
- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS13 Repair of Cracks at Joints in Solid and Cavity Walls using HeliBars

METHOD STATEMENT

1. Using a twin-bladed, diamond-tipped wall chaser with vacuum attachment, cut slots into the horizontal mortar joints to the specified depth and at the required vertical spacing. Ensure that NO mortar is left attached to the exposed brick surfaces in order to provide a good masonry/grout bond.
2. Remove ALL dust and mortar from the slots and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the slot is damp or primed prior to commencing step 5.
3. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun CS.
4. Fit the appropriate mortar nozzle.
5. Inject a bead of HeliBond grout, approx. 15mm deep, into the back of the slot.
6. Push the 6mm HeliBar into the grout to obtain good coverage.
7. Inject a second bead of HeliBond grout over the exposed HeliBar and iron it into the slot using a finger trowel. Inject additional HeliBond as necessary, leaving 10-15mm for new pointing.
8. The crack within the wall should be weather-proofed using an appropriate Helifix bonding agent e.g. HeliBond or CrackBond, depending on the width of the crack and the surface made good or left ready for any decoration.
9. Clean tools with clean, fresh water.

N.B. Pointing may be carried out as soon as is convenient after the HeliBond has started to gel.



RECOMMENDED TOOLING

For cutting slots up to 40mm deep .....Twin bladed cutter with vacuum attachment

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For injection of HeliBond into slots.....Helifix Pointing Gun CS with mortar nozzle

For smoothing pointing.....Standard finger trowel

Specification Notes

The following criteria are to be used unless specified otherwise:

A. Depth of slot into the masonry to be 35mm to 40mm.

B. Height of slot to be equal to full mortar joint height, with a minimum of 8mm. For thin mortar joint specifications refer to the Helifix Technical Dept.

C. HeliBar to be long enough to extend a minimum of 500mm either side of the crack or 500mm beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.

D. Normal vertical spacing is 450mm (6 brick courses).

E. Where a crack is less than 500mm from the end of a wall or an opening the HeliBar is to be continued for at least 100mm around the corner and bonded into the adjoining wall or bent back and fixed into the reveal, avoiding any DPC membrane.

F. In hot conditions ensure the masonry is well wetted or primed to prevent premature curing of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot, or priming with HeliPrimer WB, should be carried out just prior to injecting the HeliBond grout.

G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

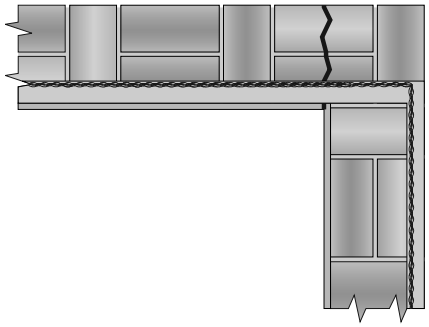
- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS14 Repair of a Crack Near an Internal Corner in a Solid Wall using HeliBars

METHOD STATEMENT

1. Using a twin-bladed, diamond-tipped wall chaser with vacuum attachment, followed by a hand or power chisel, cut slots into the internal horizontal mortar joints to the specified depth and at the required vertical spacing. Use a power/hand chisel to continue slots up to the internal corner. Ensure that NO mortar is left attached to the exposed brick surfaces in order to provide a good masonry/grout bond.
2. At the corner drill 10mm diameter holes, in line with the channeled-out mortar beds, through the wall to the exterior face.
3. On the exterior wall, use the wall chaser to remove mortar from the appropriate joints to the specified depth and at the required vertical spacing.
4. Remove ALL dust and mortar from the slots and holes and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the slots are damp or primed prior to commencing step 6.
5. Feed the 6mm HeliBar through the drilled holes, bend to fit the external slot and cut to correct length.
6. Fit the appropriate mortar nozzle.
7. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun CS.
8. Inject HeliBond grout into the holes at the corner.
9. Inject a bead of HeliBond grout, approx. 15mm deep, into the back of the interior slot using the mortar nozzle.
10. Push the 6mm HeliBar into the grout to obtain good coverage.
11. Inject a second bead of HeliBond grout over the exposed HeliBar and iron it into the slot using a finger trowel. Inject additional HeliBond grout as necessary leaving 10-15mm for new pointing.
12. Bend the external section of HeliBar to fit the exterior slot and cut to the appropriate length.
13. Repeat steps 8 to 11 as above on the external wall.
14. Point up the remaining internal and external slots with a matching mortar to suit or leave ready for any decoration.
15. Clean tools with clean, fresh water.

N.B. Pointing may be carried out as soon as is convenient after the HeliBond has started to gel.



RECOMMENDED TOOLING

For cutting slots up to 40mm deep .....Twin bladed cutter with vacuum attachment

To achieve final depth of slot beyond 40mm.....Hand or power chisel

For drilling .....SDS rotary hammer drill 650/700w

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For injection of HeliBond into slots.....Helifix Pointing Gun CS with mortar nozzle

For smoothing pointing.....Standard finger trowel

Specification Notes

The following criteria are to be used unless specified otherwise:

A. Depth of slot into the masonry to be 55mm to 70mm **plus** the thickness of any plaster.

B. Height of slot to be equal to full mortar joint height, with a minimum of 8mm. For thin mortar joint specifications refer to the Helifix Technical Dept.

C. If HeliBars are to be joined in a straight run, overlap the bars by a minimum of 500mm.

D. Top and bottom reinforcements should be positioned as far apart as practicable, up to a maximum distance equivalent to 12 brick courses (approx. 900mm).

E. Any fractures in the masonry within the 'beam zone' MUST be stabilised by Crack Stitching, injecting CrackBond TE or replacement of the masonry.

F. Any missing or very poor quality masonry MUST be replaced.

G. In hot conditions ensure the masonry is well wetted or primed to prevent premature curing of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot, or priming with HeliPrimer WB, should be carried out just prior to injecting the HeliBond grout.

H. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

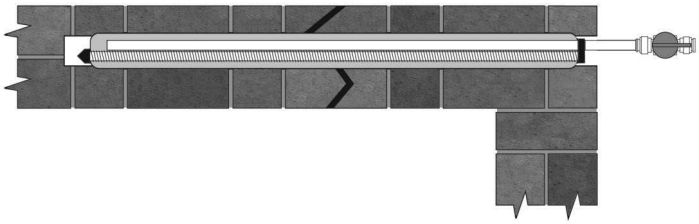
GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS15 Stitching a cracked solid wall using SockFix

METHOD STATEMENT



1. Mark the positions for the holes on the outer face of the wall.
2. Core drill the hole, to the specified diameter and depth, taking care to ensure the correct inclination and direction of the hole. Retain the entry hole core where possible.
3. Set up the pressure pot and compressor for installation.
4. Flush pressure pot and associated components with fresh water.
5. Prime the injection tube with water. Wet each SockFix prior to installation by flushing with fresh water.
6. Mix the SockFix Grout using a power mixer until a smooth fluid consistency is achieved, then pour through a sieve into the pressure pot container.
7. Insert SockFix in the hole, ensuring that the sock is evenly distributed along the full length. Do not twist or force as it is pushed into the hole (any tears in the sock will lead to premature grout leakage).
8. SockFix assemblies over 1000mm in length should be flushed with water again once inserted.
9. Connect SockFix valve with the pressure pot.
10. Inflate the SockFix sleeve with SockFix Grout from the pressure pot at a maximum of 3 bar pressure. In low strength masonry, inject under lower pressure to avoid damaging the masonry.
11. When inflating, slowly rotate in the hole to assist the grout flow and to ensure the bar is centralised on completion.
12. Maintain the pressure until the sock is fully inflated in the drilled hole and all the grout milk has been expelled.
13. Close the shut off valve and disconnect from the pressure pot.
14. Once the grouted anchor has cured sufficiently to resist any residual pressure, cut off the end of the grout tube below the surface of the masonry.
15. Make good the entry hole, using the retained core where possible.

This repair is to be undertaken by a SockFix trained installer only.

HELIFIX APPROVED INSTALLER

RECOMMENDED TOOLING

For Drilling .....Rotary Percussion / Wet Diamond / Dry Diamond

For Mixing Grout .....3 jaw-chuck drill with mixing paddle or powered grout mixer. Large catering sieve

For Inflating .....Large 20 ltr pressure pot max working pressure 110 PSI

Specification Notes

The following criteria are to be used unless specified otherwise:

A. Depth of clearance hole to be length of SockFix + a minimum of 25mm

B. Diameter of clearance hole to be determined on site depending on the substrate and the diameter of SockFix to be used.

C. Length of SockFix to be 100mm less than the materials being tied. Any cracks should be approximately at the centre of the SockFix.

D. Each SockFix should be wetted with fresh water prior to installation.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

SockFix Grout Mixing Instructions

Each 20kg bag requires 5.5litres of clean cold water

1. Place 4.5 litres of clean cold water into a clean mixing container. While mixing, slowly add approximately ¾ of a bag of Helifix SockFix Grout
2. Continue mixing until all the above grout has been mixed
3. Add a further 1 litre of clean cold water (to make up the required 5.5 litres in total)
4. Add the remaining grout while continuing to mix
5. Continue to mix for a minimum of 5 minutes ensuring all the dry grout from the side of the container is removed and mixed
6. Leave to stand for 4 minutes
7. Pour into pressure pot through sieve
8. If possible, continue to agitate grout in pressure pot in-between installations

GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

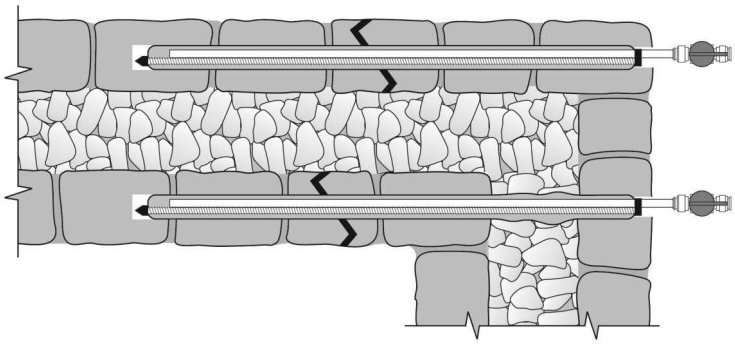
CS16 Stitching a cracked rubble filled wall using SockFix

METHOD STATEMENT

1. Mark the position for the holes on the outer face of the wall.
2. Core drill the hole, to the specified diameter and depth, taking care to ensure the correct inclination and direction of the hole. Retain the entry hole core where possible.
3. Set up the pressure pot and compressor for installation.
4. Flush pressure pot and associated components with fresh water.
5. Prime the injection tube with water. Wet each SockFix prior to installation by flushing with fresh water.
6. Mix the SockFix Grout using a power mixer until a smooth fluid consistency is achieved, then pour through a sieve into the pressure pot container.
7. Insert SockFix in the hole, ensuring that the sock is evenly distributed along the full length. Do not twist or force as it is pushed into the hole (any tears in the sock will lead to premature grout leakage).
8. SockFix assemblies over 1000mm in length should be flushed with water again once inserted.
9. Connect SockFix valve with the pressure pot.
10. Inflate the SockFix sleeve with SockFix Grout from the pressure pot at a maximum of 3 bar pressure. In low strength substrates, inject under lower pressure to avoid damaging the masonry.
11. When inflating, slowly rotate in the hole to assist the grout flow and to ensure the bar is centralised on completion.
12. Maintain the pressure until the sock is fully inflated in the drilled hole and all the grout milk has been expelled.
13. Close the shut off valve and disconnect from the pressure pot.
14. Once the grouted anchor has cured sufficiently to resist any residual pressure, cut off the end of the grout tube below the surface of the masonry.
15. Make good the entry hole, using the retained core where possible.

This repair is to be undertaken by a SockFix trained installer only.

HELIFIX APPROVED INSTALLER



RECOMMENDED TOOLING

For Drilling .....Rotary Percussion / Wet Diamond / Dry Diamond

For Mixing Grout .....3 jaw-chuck drill with mixing paddle or powered grout mixer. Large catering sieve

For Inflating .....Large 20 ltr pressure pot max working pressure 110 PSI

Specification Notes

The following criteria are to be used unless specified otherwise:

A. Depth of clearance hole to be length of SockFix + a minimum of 25mm

B. Diameter of clearance hole to be determined on site depending on the substrate and the diameter of SockFix to be used.

C. Length of SockFix to be 100mm less than the materials being tied. Any cracks should be approximately at the centre of the SockFix.

D. Each SockFix should be wetted with fresh water prior to installation.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

SockFix Grout Mixing Instructions

Each 20kg bag requires 5.5litres of clean cold water

1. Place 4.5 litres of clean cold water into a clean mixing container. While mixing, slowly add approximately ¾ of a bag of Helifix SockFix Grout
2. Continue mixing until all the above grout has been mixed
3. Add a further 1 litre of clean cold water (to make up the required 5.5 litres in total)
4. Add the remaining grout while continuing to mix
5. Continue to mix for a minimum of 5 minutes ensuring all the dry grout from the side of the container is removed and mixed
6. Leave to stand for 4 minutes
7. Pour into pressure pot through sieve
8. If possible, continue to agitate grout in pressure pot in-between installations

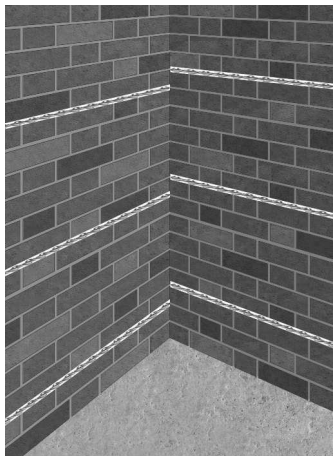
GENERAL NOTES

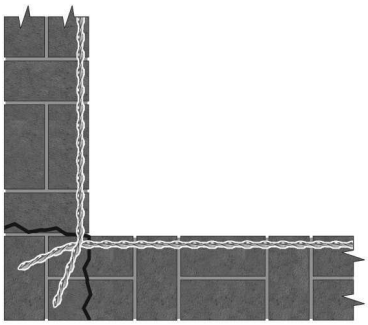
If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

CS17 Reconnecting a Cracked Internal Corner of a Solid Wall using HeliBars

METHOD STATEMENT





1. Using a twin-bladed, diamond-tipped wall chaser and vacuum attachment followed by a hand or power chisel, cut slots into the horizontal mortar joints, to the specified depth and at the required vertical spacing. Use a power/hand chisel to continue slots up to the internal corner. Ensure that **NO** mortar is left attached to the exposed brick surfaces in order to provide a good masonry/grout bond.
2. Where the slot ends at an internal corner drill a clearance hole into the adjoining wall as shown. (14mm if using HeliBond grout – recommended; 10mm if using PolyPlus resin). The angle of the hole is required to be at 25°/35° (minimum 200mm long).
3. Remove ALL dust and mortar from the slots and holes and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the slots and holes are damp or primed prior to commencing steps 6 and 7.
4. Cut the 6mm HeliBar to the required length and bend the end to fit to the full depth of the hole, then remove.
5. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun CS.
6. Fill the hole with HeliBond grout using the pinning nozzle (PolyPlus resin may be used if preferred).
7. Inject a bead of HeliBond grout, approx. 15mm deep, into the back of the slot using the mortar nozzle.
8. Push the HeliBar into the grout filled hole and slot, to obtain good coverage.
9. Inject a second bead of HeliBond grout over the exposed HeliBar and iron it into the slot using a finger trowel. Inject additional HeliBond as necessary, leaving 10-15mm for new pointing.
10. Point up or fill the remaining slot, make good the crack and leave ready for any decoration.
11. Clean tools with clean, fresh water.

N.B. Pointing may be carried out as soon as is convenient after the HeliBond has started to gel.

RECOMMENDED TOOLING

For cutting slots up to 40mm deep.....Twin bladed cutter with vacuum attachment

To achieve final depth of slot beyond 40mm.....Hand or power chisel

For drilling.....SDS rotary hammer drill 650/700w

For mixing HeliBond.....3-jaw-chuck drill with mixing paddle

For injection of HeliBond into slots.....Helifix Pointing Gun CS with mortar nozzle

For injection of HeliBond into holes.....Helifix Pointing Gun CS with pinning nozzle

For smoothing pointing.....Standard finger trowel

For injecting PolyPlus Resin.....Metal nozzle extension Pro Sealant Applicator

Specification Notes

The following criteria are to be used unless specified otherwise:

A. Depth of slot into the masonry to be 25 to 35mm **plus the thickness of any plaster/render**.

B. Height of slot to be equal to full mortar joint height, with a minimum of 8mm. For thin mortar joint specifications refer to the Helifix Technical Dept.

C. HeliBar to be long enough to extend a minimum of 500mm past the crack or 500mm beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.

D. Normal vertical spacing is 450mm, staggered both sides of the crack.

E. In hot conditions ensure the masonry is well wetted or primed to prevent premature drying of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot, or priming with HeliPrimer WB, should be carried out just prior to injecting the HeliBond grout.

F. Do not use HeliBond grout when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed with HeliPrimer WB prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme