

# HELIFIX PROJECT FORM

Version 4\_Issue 2\_(01-7-12)



<b>Approved Installer Reference:</b>	<b>Helifix Project Reference:</b> WC 207045
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**(1) PROJECT DATA SHEET** Warranties will not be issued unless all information in the grey boxes is complete

**HPF sent in for (Please check in boxes below):**

<b>Design Approval</b>	<b>Design Modification</b>	<b>Warranty (previously Approved)</b>	<b>HPF received date (by Helifix)</b>

<b>Project address:</b> The Treasury Office New Square Lincoln's Inn  <b>Town / City:</b> London <b>County:</b> <b>Postcode:</b> WC2A 3TL	<b>Project Type:</b> House ( ) Flat ( ) Bungalow ( ) Bridge ( ) Wall ( ) Other:  <b>Contact name at property:</b> <b>Tel:</b> <b>E-mail:</b>
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<b>Date enquiry received:</b>  <b>Survey date:</b> 5 <sup>th</sup> June 2013  <b>Source of project:</b> Helifix ( X ) Approved Installer ( ) Others:
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<b>Project Brief:</b> (i.e. General overview of the requirements, type of structure, period features etc) The buildings at the New Square dating back to the end of 17 <sup>th</sup> century. Bowing of the external leaf of the wall between the 1 <sup>st</sup> and 2 <sup>nd</sup> floor windows, with singular bricks becoming loose.
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<b>Specification</b> <b>Specification by:</b> <ul style="list-style-type: none"> <li><b>Approved Installer (company name):</b> Survey carried out by (name):</li> <li><b>Other Specifier:</b> Contractor (non-AI) ( ) Project Engineer ( ) Property Owner ( ) Others: (Please fill in details below)</li> <li><b>Helifix Staff (ONLY USE THIS FIELD WHEN HELIFIX STAFF CARRIED OUT THE SURVEY):</b> Agata Tamulewicz</li> </ul> <b>Specification date:</b> 11 <sup>th</sup> June 2013
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<b>Other Specifiers (1):</b> <b>Address:</b>  <b>Town / City:</b> <b>County:</b> <b>Postcode:</b>	<b>Tel:</b> <b>Fax:</b> <b>Mobile:</b> <b>e-mail:</b> <b>Contractor type:</b> Main ( ) Sub ( ) Roofing ( ) <b>Other:</b>
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<b>Other Specifiers (2):</b> <b>Address:</b>  <b>Town / City:</b> <b>County:</b> <b>Postcode:</b>	<b>Tel:</b> <b>Fax:</b> <b>Mobile:</b> <b>e-mail:</b> <b>Contractor type:</b> Main ( ) Sub ( ) Roofing ( ) <b>Other:</b>
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## (2) DEFECTS & DIAGNOSIS SHEET

Please provide the information listed below (please use drawing sheets) and complete the checklist accordingly.

### Defects Checklist:

ITEM	INFORMATION INCLUDED	DETAILS	✓
<b>1. PLAN</b>	Plan of building, including location of basement and any extensions		
	Drainage layout and condition		
	Surrounding trees/significant vegetation. Have any trees been felled or reduced? Please label		
	Direction of span of floor and roof joists		
	Direction of ground slope. Indicate whether slope is slight, moderate or steep		
	Area of damage under consideration		
	References to elevation drawings		
<b>2. ELEVATIONS</b>	Number of stories	4 + basement	✓
	Height to eaves	Approx. 17m	✓
	Areas of bowing, leaning. Provide estimate of extent	Bulging of external leaf under two windows, extending to another two windows on the sides (see photos)	✓
	Location, size, age, type of cracking. Comment on areas of previous repair	None (possible internal cracks)	✓
	If cracking is at dpc level provide information on type and condition of dpc		
	Existing wall tie type and spacing		
	Lintel types and condition (if defective)		
	Openings (windows, doors, air vents in masonry to be repaired)		
	Areas of defective masonry (eg, spalling due to frost action, inadequate mortar bonding)		
<b>3. SECTIONS</b>	Overall wall thickness	13" solid brick	✓
	Outer leaf thickness/material	9"	✓
	Inner leaf thickness/material	4.5"	✓
	Cavity width/fill material	none	✓
	Detail render externally and/or plaster internally		
	Confirm whether joists built into wall or on hangers		
	If extensions differ from main building then provide additional section showing information as requested above		
<b>4. INTERNAL DETAILS</b>	Crack locations, type, size		
	Areas of bowing or leaning		
	Partition walls – load bearing, solid masonry, studwork		
	Do floors slope and are they adequately supported?		
	Square of windows and doors – any signs of movement?		

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**(3) DIAGNOSIS AND REPAIR DETAILS****1. What are the defects that have been identified?**

Approx. 100mm bulging of external leaf of the wall below the 2<sup>nd</sup> floor windows.  
The main area of bulging is located below two windows and extends under two side windows (marked in attached photos).  
A few bricks have fallen off.

The interior of the affected room is clad with wood panels and there are cracks up to 5mm visible in the corners of the bay windows and between the wall cladding and the floor. It is unclear however whether these cracks have been caused by the movement of the wall or are by the natural shrinkage and movement of wood over time.

Possible bulging of the wall between the 2<sup>nd</sup> and 3<sup>rd</sup> floor windows, however no close-up investigation was possible due to lack of access to higher floors.  
Also, possible bulging of the brickwork under other 2<sup>nd</sup> floor windows in this area.

Helifix have been asked to advice on the main bulge area only, we recommend however that the other areas of possible bulging are assessed and monitored.

**2. What has caused the defects listed in question 1?**

(E.g. subsidence, thermal/ moisture expansion, corrosion of embedded steel etc.)

Unknown, however no wall ties were visible during inspection (lack of connection between the external and internal leaves).

**3. Is the movement progressive?**

Yes, unless addressed.

**4. What is/are the purpose of the repair(s)?**

To reconnect the external and internal leaves of the wall and to prevent the area of the wall from falling down.

**5. Are further measures required to stabilise the structure in addition to proposed Helifix works?**

Yes – the area of the main bulge to be rebuilt.

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## 6. Have you proposed a repair scheme?

Install Helifix BowTies or BowTies HD (depending on the floor joists direction) through the wall into the floor joists under four windows – see Helifix Standard Details RB02 & RB04.

Install DryFix wall ties to reconnect the two wall leaves, at 450mm x 450mm centres – see Helifix Standard Detail WT12.

Rebuild the bulging area utilising Helifix StarTies laid into the bedjoints of the new brickwork – similar to Helifix Standard Detail WT34.

See photos attached.

## (4) ATTACHMENTS

Information attached	(√) or (X)	Number of Sheets	References	Dates	Revisions
Drawings (i.e. Plans/ Elevations)					
Photographs	√			11 <sup>th</sup> June 2013	
Geotechnical Report					
Drain Survey					
Crack Monitoring Data					
Structural Engineer's Report					
Other:					



# HELIBEAM PROJECT FORM

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SUSTAINABLE STRUCTURAL SOLUTIONS

Approved Installer Reference:	Helifix Project Reference: WC 207045
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## (5) APPROVAL SHEET

Warranties will not be issued unless all information in the grey boxes is complete

APPROVAL EVENT	DATE	SIGNATURE	NAME (Please print)
Form sent to Helifix for approval			
Design modified by Technical Dept.			
Design approved by Technical Dept.			

Date proposal submitted to Client:	Project won or lost?	Date won / lost:
Appointed Approved Installer:	Proposed start date:	

EVENT	DATE	SIGNATURE	NAME (Please print)
Specification modified on site			
Modification agreed by Technical Dept.			
Installation completed (Operative)			
Installation completed (AI Surveyor)			

<b>Warranty details - a copy of the Approved Installer invoice must be attached to all Warranty applications</b>			
Installer warranty purchase order number:		Materials used – Helifix Ref. No.s (on Invoice or Order Acknowledgement):	
Date Warranty applied for:			
Helibeam works value (ex. VAT):			
<b>Office use only</b>			
Warranty approved by Helifix:			
Warranty issue date:		Warranty number:	
Material batch numbers:			



Photo 1. Bulge location.



Photo 2. Close-up of the bulge.

**HELI****FIX**

Key	
BowTie	⊕
CemTie	⊗
WallTie	⊙
Single HeliBar	----
Twin HeliBar	----

Project Name	The Treasury Office, New Square, Lincoln's Inn, London, WC2A 3TL				
Drawing Name	Building elevation - location of the bulge.				
Drawn By	AT	Date	11/06/2013	Scale	NTS





Photos 3-4. The gap created by separation of the external leaf.

**HELI**FIX

### Key

BowTie



CemTie



WallTie



Single  
HeliBar



Twin  
HeliBar



Project Name	The Treasury Office, New Square, Lincoln's Inn, London, WC2A 3TL				
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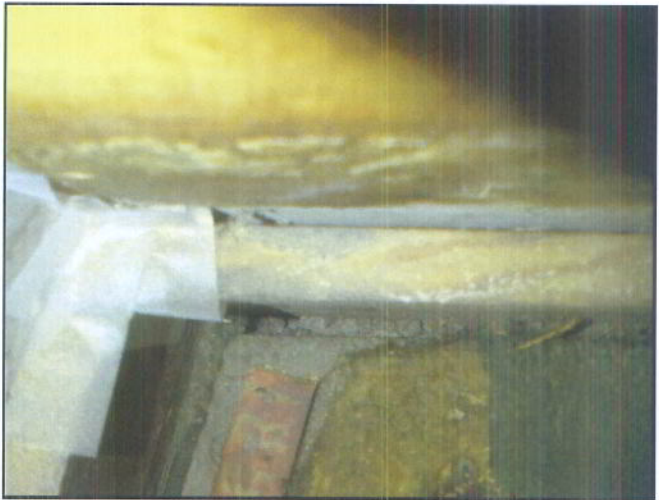
Drawing Name	Close-up of the bulge.				
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Drawn By	AT	Date	11/06/2013	Scale	NTS
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**Photo 5. Internal wood cladding seen from outside.**



**Photos 6-8. Cracks in the internal wood cladding (seal-taped due to draft and call air coming in through the cracks.)**

**HELI****FIX**

**Key**

**BowTie**



**CemTie**



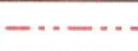
**WallTie**



**Single  
HeliBar**



**Twin  
HeliBar**



**Project Name** The Treasury Office, New Square, Lincoln's Inn, London, WC2A 3TL

**Drawing Name** Wooden panels - interior cladding.

**Drawn By** AT **Date** 11/06/2013 **Scale** NTS





1. Install Helifix BowTies or BowTies HD (depending on the floor joists direction) through the wall into the floor joists under four windows – see Helifix Standard Details RB02 & RB04.

2. Install DryFix wall ties to reconnect the two wall leaves, at 450mm x 450mm centres – see Helifix Standard Detail WT12.

3. Rebuild the bulging area.

4. Install DryFix fixings into the rebuilt area.

(Location of fixings in the drawing is indicative only, precise location to be agreed on site.)

# HELIFIX

## Key

BowTie 

CemTie 

WallTie 

Single HeliBar 

Twin HeliBar 

Project Name	The Treasury Office, New Square, Lincoln's Inn, London, WC2A 3TL				
Drawing Name	Repair scheme.				
Drawn By	AT	Date	11/06/2013	Scale	NTS

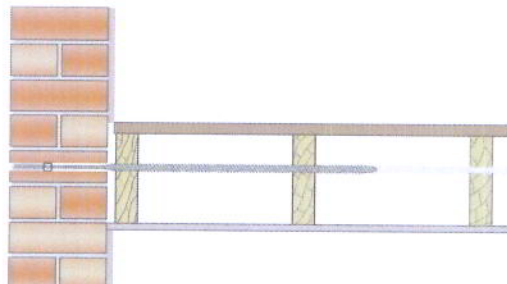
**RB02**

## Restraining a Bowed Solid Wall using BowTie HDs into Joist Side

### METHOD STATEMENT

1. Mark the positions for the BowTie HD clearance holes on the external wall.
2. **Drill the clearance hole (normally 16mm)** through the masonry to line up with the joist in the middle third of the timber away from the edges.
3. Clean out the hole to clear any dust or debris.
4. Fit the driver into an SDS hammer drill, set to rotary only. Insert the BowTie HD into the driver.
5. Screw the BowTie HD through the first and second joists (and the third if specified).
6. Place the sleeve over the tie and push it to the back of the hole in the outer leaf masonry.
7. Inject Helifix PolyPlus resin into the hole to fill it completely.
8. Allow the resin to gel (normally 15 to 20 minutes).
9. Make good all holes at the surface with brick dust or matching mortar or leave ready for any decoration.
10. Clean PolyPlus tools with a suitable solvent.

*N.B. Ensure ceiling void is free of pipes and cables.*



### RECOMMENDED TOOLING

For drilling and insertion of BowTies.....SDS rotary hammer drill 650/700w  
For installation of BowTies.....BowTie HD driver  
For injection of PolyPlus resin.....Applicator gun

### Specification Notes

The following criteria are to be used unless specified otherwise:

- A. BowTie HD penetration into the side grain of the last timber joist must be a minimum of 75mm or the tie should be driven through the joist.
- B. The maximum horizontal spacing between BowTies is 600mm.

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

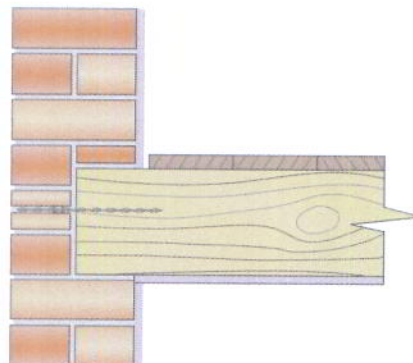


**RB04**

# Restraining a Bowed Solid Wall using BowTies into Joist Ends

## METHOD STATEMENT

1. Mark the positions of the joists on the external wall.
2. Drill clearance holes for the BowTies (normally 12mm), **through the masonry only**, in line with the centre of the joists.
3. Clean out the hole to clear any dust or debris.
4. Insert the BowTie into the support tool. If a power support tool is to be used, first fit it into an SDS rotary hammer drill.
5. Drive the BowTie into the timber to the required depth (75mm minimum).
6. Place the sleeve over the tie and push it to the back of the hole in the masonry (use the support tool).
7. Inject Helifix PolyPlus resin into the hole to fill it completely.
8. Allow the resin to gel (normally 15 to 20 minutes).
9. Make good all holes at the surface with brick dust or matching mortar or leave ready for any decoration.



## RECOMMENDED TOOLING

For drilling and insertion of BowTies.....SDS rotary hammer drill 650/700w with roto stop

For installation of BowTies.....BowTie support tool

For injection of PolyPlus resin.....Applicator gun

## Specification Notes

The following criteria are to be used unless specified otherwise:

- A. BowTie penetration into the end grain of the timber joist must be a minimum of 75mm.
- B. Each joist in the area of concern is to be secured with a BowTie (i.e. spacing of BowTies is to correspond with the original joist spacing!).
- C. Ensure that all joists into which BowTies are to be installed are both sound and secure.

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## GENERAL NOTES

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# Pinning Multi-Leaf Brick / Solid Masonry using DryFix (horizontal entry)



## METHOD STATEMENT

1. Mark the position for the DryFix ties on the outer face of the masonry
2. Drill an appropriate diameter pilot hole (depending on the diameter of the DryFix tie and the density of the back-up material) into the masonry, at the specified angle and to predetermined depth, using a rotary percussion drill (3-jaw-chuck-type)
3. Fit the special DryFix Power Driver Attachment to an electric hammer drill (SDS type)
4. Load the DryFix tie into the insertion tool
5. Power-drive the tie into position until its outer end is recessed below the face of the near leaf by the insertion tool
6. Make good the entry hole with matching materials



## RECOMMENDED TOOLING

For drilling pilot hole.....Rotary percussion 3-jaw-chuck drill  
 For installing DryFix.....DryFix power-driver attachment fitted to SDS rotary hammer drill 650w/700w

## Specification Notes

The following criteria are to be used unless specified otherwise:

- A. Length of DryFix ties to be sufficient to be able to accommodate a minimum 75mm penetration into the second or third brick leaf, depending upon location of delamination
- B. Depth of pilot hole to be length of DryFix + 25mm
- C. Diameter of pilot hole to be determined on site, through testing – typically:  
 5–6.5mm for 8mm diameter tie  
 6.5–8mm for 10mm diameter tie
- D. Typically, holes should be drilled in a 450 x 450mm staggered pattern

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

## GENERAL NOTES

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- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installer scheme



**WT34**

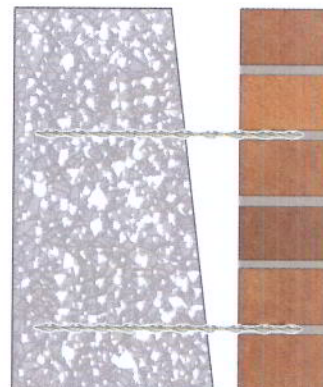
# Securing a New Leaf to Natural Materials (Cob, Wychert etc) using StarTie



## METHOD STATEMENT

1. Locate the appropriate position of the StarTie on the existing Cob wall in line with the mortar bed of the new brick / concrete block wall.
2. If required, drill an appropriate diameter pilot hole (typically 6mm into denser materials) into the Cob using a suitable drill (3-jaw-chuck-type).
3. Load the StarTie into the support tool and drive home into the Cob, typically 250mm (contact Helifix Technical Dept. for confirmation).
4. Embed the outer end of the StarTie in the mortar bed of the new outer leaf as it is constructed.

*N.B. The security of fixing in the cob wall can be tested using a Helifix Load Test Unit prior to the erection of the new outer brick or block leaf.*



## RECOMMENDED TOOLING

For drilling pilot hole.....Rotary percussion 3-jaw-chuck drill + bit  
For installing StarTie.....Power support tool, fitted to SDS rotary hammer drill, or hand held support tool

## Specification Notes

The following criteria are to be used unless specified otherwise:

- A. Length of StarTies to be sufficient to accommodate  $\frac{1}{4}$  width of near leaf + width of cavity + typically 250mm into the natural material (to be determined by on-site testing)
- B. Diameter of far leaf pilot hole, if required, to be determined on site (typically 6mm)
- C. Typically, holes should be drilled in a 450 x 450mm staggered pattern. Please check with Helifix Technical Dept, for further assistance.

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

## GENERAL NOTES

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