



# Certificate No: EWS1313



This certificate is valid for Building Regulations & associated technical guidance in force on the date of registration and for the regulations in the countries indicated

## Roger Bullivant Limited - RBeam Precast Foundation System

### Description of Product

This is an assessment of Roger Bullivant's RBeam Precast Foundation System which is a complete engineered foundation solution for low rise buildings as defined in BS 8103-1. Piling is project specific designed separately from the Foundation Beams and not part of this registration.

Please consult the 'Conditions of Certificate' and 'Non-Regulatory Information' sections to see if the system is acceptable for use on sites covered by LABC Warranty.



### Key Factors Assessed

- ☐ Mechanical Resistance & Stability
- ☐ Safety in Use

### Validity

This certificate was first issued on 18<sup>th</sup> January 2021 and is valid until 18<sup>th</sup> January 2022

Issue Dated 18<sup>th</sup> January 2021

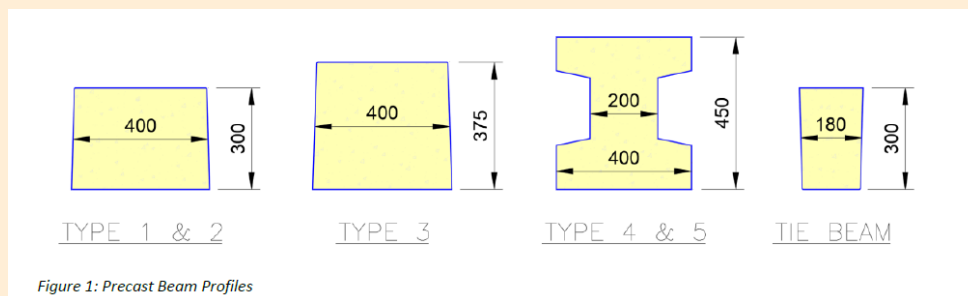
## Scope of Registration

The Roger Bullivant Limited RBeam Precast Foundation System is a factory produced reinforced precast concrete foundation beam of various profile dimensions and shapes. Foundation beams are designed to support the superstructure walls, floors and roof loads from low-rise residential or commercial buildings constructed from traditional common materials and building techniques. Beams are simply supported and span typically between precast or in-situ pile caps which are placed/constructed on supports installed at the necessary positions dictated by the superstructure and the site ground conditions.

The definition of low-rise buildings in *BS 8103-1* being as follows:

- Buildings to be not more than three storeys above ground level
- Rooms within the roof space constitute a storey height
- Roof: maximum clear span 12.0 m
- Floor: maximum clear span 6.0 m
- Dynamic wind pressure not exceeding a value of 1.2 kN/m<sup>2</sup>
- No part of wall or roof higher than 15 m above lowest adjacent ground level
- Storey height: maximum 2.7m

The precast foundation beams may be used outside the above limitations but will require separate project specific consideration to be carried out by a suitably experienced person. 4 shape profiles are available dependent upon the design.



### Design

Standard project calculations are completed for each foundation design to identify the superstructure loadings on each foundation beam and pile location. Where available, superstructure element analysis can be substituted by client provided engineers loads. Where the foundation beam loading pattern deviates from a universally distributed load (i.e. point loads), these are analysed for both bending and shear and checked against the foundation beam capacities.

Foundation beam type is selected based on the calculated superstructure loads and in reference to the safe load span tables. For each foundation layout a set of standardized layout drawings are produced in CAD in conjunction with the project calculations and associated typical sections.

Beams are reinforced as below:

Ref.	Dimensions		Main Reinforcement $A_{s,prov}$		Top Reinforcement	Shear Links
	Width (mm)	Height (mm)	Layer 1	Layer 2		
1	400	300	4 x H16	-	4 x H8	4 x H8 Legs @180 c/c
2	400	300	4 x H20	-	4 x H8	4 x H8 Legs @180 c/c

3	400	375	4 x H20	2 x H16	4 x H8	4 x H8 Legs @225 c/c
4	400	450	4 x H20 & 2 x H16	-	4 x H8	2 x H10 Legs @200 c/c
5	400	450	6 x H20	2 x H20	4 x H8	2 x H10 Legs @200 c/c

### Installation

Beams are factory produced and delivered to site for positioning on piles. The foundation beams are connected together at support positions with continuity reinforcement placed in the top face of the beams and encased in site cast concrete to provide a continuous foundation. The layout of foundation beams is designed to provide restraint in two directions for the pile heads by way of the dowel action of the pile reinforcement, which extends into the beam joint and the friction between the foundation beams and pile caps. In accordance with BS 8103-1, where possible walls should be positioned such that the centre line of the wall construction is on the centre line of the foundation. Where this is not possible due to wall position or shape of the foundation beam, then it is sufficient to ensure that the centre of the wall is within the middle third of the underside width of the foundation beam.

Tight tolerances is the key to the successful installation of the RBeam Precast Foundation System. In general, the construction tolerances comply with or better than those within BS 5606 with the following specific requirements that must be maintained: Width + -5mm, Length +5 / -0mm.

The Minimum bearing of the end of the Precast Foundation Beams onto the pile cap is 150mm for beam types 1, 2 & 3, and 200mm for beam type 4 & 5.

Where site specific heave precautions are identified as a necessity, a void, void former or compressible material shall be provided below all foundation beams and pile caps to give the required allowance for ground volume change potential to occur to avoid the foundation structure being adversely affected.

Installation is undertaken by Roger Bullivant trained operatives.

### Quality Assurance

Roger Bullivant Ltd are certified under

ISO 14001:2015 - Environmental Management System

Certificate of Conformity of the Factory Production Control under the Construction Product Regulation.

ISO 45001:2018 - Occupational Health & Safety Management System.

BS EN ISO 9001:2015 Quality Management System

### **For Scottish purposes:**

The Roger Bullivant Pre-cast Concrete Foundation system is a factory produced, reinforced concrete foundation beam designed to support superstructure walls, floors and roofs from low-rise residential or commercial buildings constructed from traditional materials and building techniques. Beams span between pre-cast pile caps which are supported on piled supports installed as dictated by the superstructure and ground conditions. Different beam profiles are available depending on design loads and superstructure configuration with beams available in 150mm length increments.

This proposal for a registered detail does not include the associated piling as this would be a site specific requirement.

The foundation system has been designed for a service life of 50 years on the basis of assumed limits for aggressive ground conditions and/or water table. These design assumptions are valid, as is the concrete specification, but does mean that project by project geochemical investigation is essential to ensure the system is appropriate for the site conditions encountered.

## Conditions of Certificate

Structural design calculations are required for each specific project.

### **For Scottish purposes:**

The specifications and materials referred to have been assessed in accordance with the Building (Scotland) Regulations 2004 and in accordance with the supporting guidance in the Domestic and Non-Domestic Technical Handbooks which came into force with effect from 1 October 2019.

Where reference is made on a plan or specification document to any Code of Practice, British or European Standard or manufacturer's instruction it shall be construed as a reference to such publication in the form in which it is in force at the date of this Registered Detail.

The materials specified shall not be changed without first gaining approval so to do. Failure to do so will invalidate the Registered Detail.

This Registered Detail should not be regarded as a formal approval under the building warrant process prescribed by the Building (Scotland) Act 2003 enacted from 1 May 2005. It supports the site-specific building warrant submission required in every case.

The system designer has demonstrated the precast foundation system to be competent both in structural design and integrity. The system scope in accordance with the submission comprises:

- foundations to buildings of no more than 3 storeys in height
- floor spans not exceeding 6.0 metres and
- with storey heights not exceeding 2.70 metres, in Building Classifications 1 and 2A

In all cases where the foundation system is used, site specific calculations, specification and drawings are required and specific details where wind uplift is a predominant load case. The piling arrangements below pile cap level are beyond scope of the Registered Detail as these require consideration of site specific geotechnical requirements.

Users should take precaution in specifying the appropriate design codes (British Standards or Eurocodes) for any calculations of the system to ensure design compatibility with the superstructure. Notwithstanding, the Scottish Technical Standards cite the use of Eurocodes in structural design and this should be the preferential route for calculation.

Structural calculations are required for each project.

Project specific drawings will be required in all situations where the system is intended to be used.

LABC and LABSS consider that, RBeam Precast Foundation System will meet the functional requirements of the Building Regulations (listed below) if the criteria detailed in this certificate are met;



## The Building Regulations 2010 (as amended) England & Wales

Please refer to individual Regulations below.



## The Building Regulations 2010 (as amended) England

Regulation 7 (2018) Materials and Workmanship

Note: The system is acceptable subject to the Scope of Registration and Conditions of Certificate.

AD A (2013) Structure

Note: The system is acceptable subject to the Scope of Registration and Conditions of Certificate.



## The Building Regulations 2010 (as amended) Wales

Regulation 7 (2013) Materials and Workmanship

Note: The system is acceptable subject to the Scope of Registration and Conditions of Certificate.

AD A (2010) Structure

Note: The system is acceptable subject to the Scope of Registration and Conditions of Certificate.



## The Building (Scotland) Regulations 2004 (as amended)

Technical Handbook Domestic and Non-Domestic

Regulation 8 Durability, workmanship and fitness of materials

0.8.5: Ways of establishing the fitness of materials

Regulation 9 Building Standards applicable to construction

Note: Construction shall be carried out so that the work complies with the applicable requirements of Schedule 5 Technical Handbooks – Domestic Construction 2019.

Mandatory

Standards 1.1 Structure

Note: The product will contribute to compliance with the above Standard provided it is installed in accordance with the manufacturer's recommendations and within the Scope of Registration and Conditions of Certificate.

## Non-Regulatory Information



### LABC Warranty

The system has not been assessed by LABC Warranty.

## Supporting Documentation

CE Marking Cert 0086-CPR-607597 – Certificate of Conformity of the Factory Production Control

EMS - 14001;2015 - EMS 74925 - Exp 14.06.21 – Environmental Management System

H & S - 45001;2018 - OHS 606094 - Exp 22.07.2023 – Occupational Health & Safety Management System

HFD-HMS 1308 - Installing Pre-Cast Concrete Ground Beams – Method statement

Product Conformity Certification

Quality – 9001:2015 - FS62321 - Exp 04.06.21 – Quality Management System

Quality Management System Certification No 1638 - to Nov'2021(31)

R Beam Design Manual

### For Scottish purposes:

~~ - Title and Contents.pdf

00 - Executive Summary Document.pdf

01 - Section 1 - Design Principles.pdf

02 - Section 2 - Universal Beam Design and Calculation (BS 8110).pdf

03 - Section 3 - Pilecap Design.pdf

04 - Section 4 - Insitu Works.pdf

05 - Section 5 - Remediation.pdf

06 - Appendix A - References.pdf

07 - Appendix B - Reinforcement Drawings - Beams.pdf

08 - Appendix C - Detail Drawings - Pilecaps & Components.pdf

09 - Appendix D - Detail Drawings - Junctions.pdf

10 - Appendix E - Typical Sections.pdf

RD1313 LABC Briefing Note.pdf

Final Structural Report - DCC - Roger Bullivant PC Foundations

## Contact Information

Roger Bullivant Limited

RB Walton Park

Hearthcote Road

Swadlincote

Derbyshire

DE11 9DU

Tel: 0845 8381801

Email: [info@roger-bullivant.co.uk](mailto:info@roger-bullivant.co.uk)

Web: [www.roger-bullivant.co.uk](http://www.roger-bullivant.co.uk)

## RD Certificate Number: EWS1313

### Roger Bullivant Limited - RBeam Precast Foundation System

#### Description

This is an assessment of Roger Bullivant's RBeam Precast Foundation System which is a complete engineered foundation solution for low rise buildings as defined in BS 8103-1. Piling is project specific designed separately from the Foundation Beams and not part of this registration.

#### Scope of Registration

Due to space limitations, the Registered Detail certificate should be consulted for the full scope of this registration.



#### Validity

This system has been checked for compliance in accordance with English, Welsh and Scottish Building Regulations.

Registration was first issued on 18/01/21 and is valid until 18/01/22 providing there are no amendments to applicable regulations.

**Issue dated** 18/01/2021

#### Further Information

For more detailed information including access to the full certificate and supporting documents please use this link  
<https://www.labc.co.uk/business/labc-assured/ews1313-roger-bullivant-limited-rbeam-precast-foundation-system>

#### **Roger Bullivant Limited**

RB Walton Park  
Hearthcote Road  
Swadlincote  
Derbyshire  
DE11 9DU  
Tel: 0845 8381801  
Email: [info@roger-bullivant.co.uk](mailto:info@roger-bullivant.co.uk)  
Web: [www.roger-bullivant.co.uk](http://www.roger-bullivant.co.uk)

