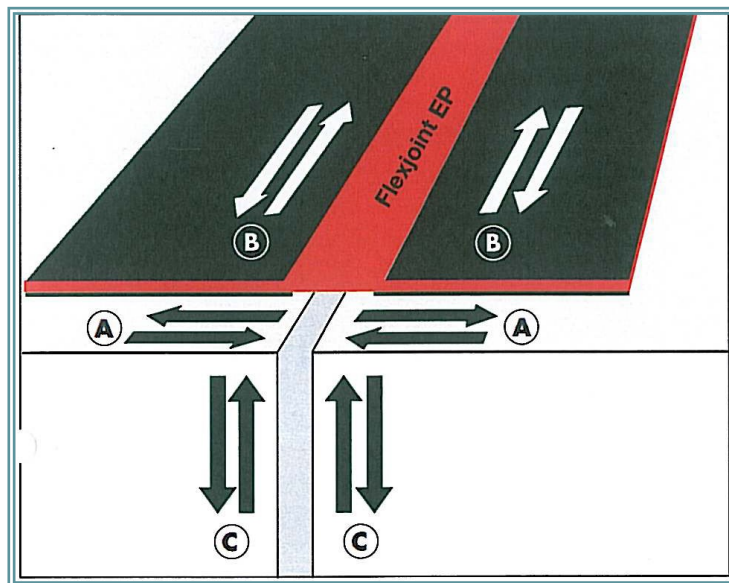




BEAL Appraisal Certificate



Construction Specialties FLEXJOINT EP Expansion Joints System



Product

1.1 Construction Specialties FLEXJOINT EP Expansion Joints System is a torchable and epoxy adhered specialist waterproof expansion joint system, that offers a practical solution to expansion joints more commonly found in membrane roof construction, and is used in conjunction with, torch applied and liquid applied roofing and waterproofing membranes.

Building Regulations

2.1 In the opinion of BEAL, the Construction Specialties FLEXJOINT EP Expansion Joints System, if designed, installed and maintained in accordance with the statements and conditions of this Appraisal Certificate, will meet the following provisions of the NZBC.

2.2 Clause B2 DURABILITY

Performance B2.3.1 (b), 15 years. The Construction Specialties FLEXJOINT EP Expansion Joints System meets this requirement. See paragraphs 8.1-8.2.

2.3 Clause E2 EXTERNAL MOISTURE

Performance E2.3.2. The Construction Specialties FLEXJOINT EP Expansion Joints System will contribute towards meeting this requirement. See paragraph 11.1

2.4 Clause F2 HAZARDOUS BUILDING MATERIALS

Performance F2.3.1. The Construction Specialties FLEXJOINT EP Expansion Joints System meets this requirement and will not present a health hazard to people.

Scope and Limitations

3.1 Construction Specialties FLEXJOINT EP Expansion Joints System has been appraised for use as a torchable and epoxy adhered waterproof expansion joint system for use with membrane roof construction, torch applied and liquid applied roofing and waterproofing membranes within the following scope;

- New or existing roofs or decks that incorporate a torch-on membrane or mastic asphalt waterproofing (domestic or commercial)
- New or existing bridges that require a system to prevent the ingress of (external) moisture at expansion joints.

3.2 Construction Specialties FLEXJOINT EP Expansion Joints System must be installed in accordance with the Tech-

Applicant:

Construction Specialties NZ Limited

P.O.BOX 302 478
North Harbour 0632
Auckland
TEL: 09 415 3238
FAX: 09 415 3239
www.cs-group.co.nz



Construction Specialties

Appraiser:

BEAL

2A Plimmerton Drive
Plimmerton, Porirua, NZ
Tel: +64 233 6661
Fax: +64 233 6662
E-Mail: sales@beal.co.nz
www.beal.co.nz



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nical Literature to produce the performances as determined within this Appraisal Certificate.

3.3 Installation must be carried out by an applicator trained and approved by Construction Specialties Ltd.

Technical Literature

4.1 Refer to the Construction Specialties FLEXJOINT EP Expansion Joints System Technical Literature. The Technical Literature must be read in conjunction with this Appraisal Certificate. All aspects of design, use, installation and maintenance contained within the Technical Literature and scope of this Appraisal Certificate must be followed.

4.2 For a copy of this Technical Literature and any subsequent updates please refer to:

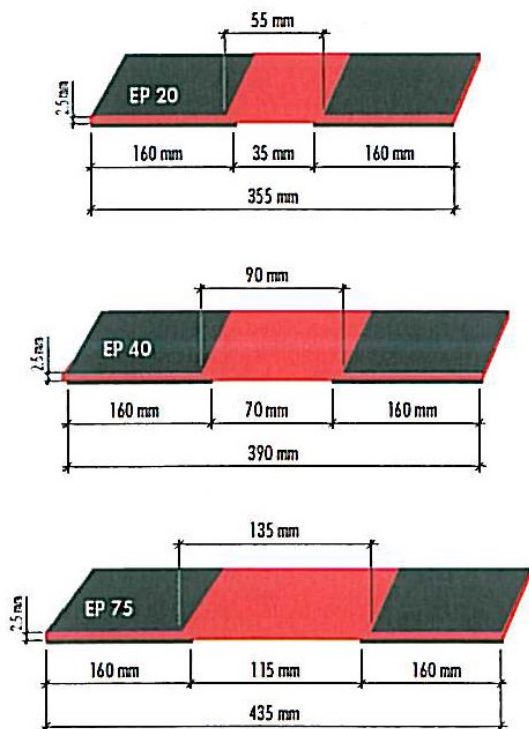
www.cs-group.co.nz

Technical Specification

5.1 The Construction Specialties FLEXJOINT EP Expansion Joints System is a preformed elastomeric gasket of nominal thickness of 2.5mm and three nominal widths. The product is made from a EDPM material reinforced with fiberglass with three widths of section in the centre that is not reinforced but can stretch. The wings each side of the centre are coated with a flame resistant fleece to enhance epoxy adhesion. Construction Specialties FLEXJOINT EP Expansion Joints System is black in colour with the centre stretchable area a dark orange.

5.2 The FLEXJOINT EP product is available in three widths, each incorporating a different width of the section that stretches:

- 355mm wide with a 55mm section that stretches;
- 390mm wide with a 90mm section that stretches;
- 435mm wide with a 135mm section that stretches.

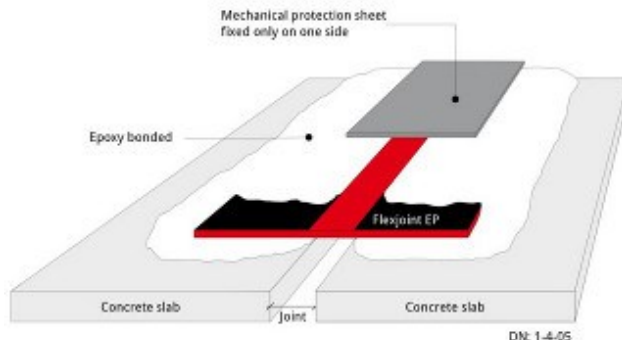


5.3 On site, the FLEXJOINT EP product is adhered to both sides of the expansion joint substrate, using either torch applied heat-welding or approved epoxy adhesive.

5.4 Once the FLEXJOINT EP product has been ad-

hered to the substrate, the top layer of the roofing material can be applied on top of either side of the FLEXJOINT EP. Any gap between the edges of the top layer of roofing material is either sealed using an expandable sealant as per the roofing material manufacturer's instructions, or covered with a strip of membrane such that one side of the strip membrane is fixed while the other side is able to slide over the underlying membrane.

5.5 The strip membrane may be either torch or epoxy adhered to one side of the top layer of roofing membrane. See drawing below.



5.6 Where the FLEXJOINT EP product has a joint, then the joint is vulcanized using a special device to provide a continuous impermeable monolithic joint. See photo.



Handling and Storage

6.1 The FLEXJOINT EP product must be protected from damage before use.

Design Information

General

7.1 The FLEXJOINT EP product is a solution to expansion joints commonly found in membrane roof construction, and is used in conjunction with, torch applied roofing and liquid applied waterproofing membranes. Typical applications are found on large roof-tops and on bridges where expansion joints have been allowed for movement.

7.2 The preparation of the membrane roof construction, and expansion joints, is determined by the membrane manufacturer's instructions. Where the expansion joint is over an asphaltic waterproofing system, the design of the expansion joint shall be as per the manufacturer's instructions.

7.3 The width of product chosen is based on the expected expansion of the joint as determined by the designer. Typically where the movement allowed for does

not exceed 55mm, the FLEXJOINT EP 20 is selected. Where the movement allowed for does not exceed 90mm, the FLEXJOINT EP 40 is selected. Where the movement allowed for does not exceed 135mm, the FLEXJOINT EP 75 is selected.

Durability– Clause B2

8.1 When FLEXJOINT EP product is used and installed in accordance with this Appraisal Certificate and Technical Literature, and the building or bridge is maintained so that the functional requirement of NZBC Clause B2 is met, and the product is not damaged, then it is expected to have a serviceable life of at least 15 years.

Maintenance

8.2 The product requires no maintenance.

External Moisture

9.1 When the FLEXJOINT EP product is used and installed in accordance with this Appraisal Certificate and Technical Literature, the product will contribute to a building meeting the functional performance requirement of clause E2 of the NZBC.

9.2 Where the installation is on a bridge, the FLEXJOINT EP product will provide resistance to the ingress of moisture through the control joints where it has been installed.

Installation Information

Installation Skill Level Requirement

10.1 Installation of the FLEXJOINT EP product shall be by tradesmen trained and approved by Construction Specialties Ltd.

General

11.1 Installation of the FLEXJOINT EP product must be made in accordance with the FLEXJOINT EP Technical Literature and this Appraisal Certificate.

11.2 Construction Specialties FLEXJOINT EP Expansion Joints System must only be installed when the weather conditions allow for the proper installation.

Health and Safety

12.1 The FLEXJOINT EP product is a inert material, is a non irritant to human skin and does not pose a health threat. Safety equipment should be worn to protect applicators breathing fumes during the torching or vulcanizing processes.



Basis of Appraisal

BEAL use the compliance verification procedure to demonstrate compliance with the relevant clauses of the NZBC based on a risk analysis procedure.

The following is a summary of the technical investigations carried out

Tests

13.1 Testing of the FLEXJOINT EP product has been carried out by covering the following properties -

- Tear resistance
- Tensile strength & Elongation at break
- Heat resistance
- Cold resistance
- Hydrostatic water resistance
- Compatibility with bitumen
- Density
- Shore hardness
- Fire resistance
- Abrasion Resistance

13.2 The resistance to moisture absorption and the effect of salt was assessed by BEAL using in-house test methods and found satisfactory.

Other Investigations

14.1 An assessment of the durability of the FLEXJOINT EP product has been made by BEAL based on in-service history.

14.2 An assessment of the ease of installation was made by BEAL and found satisfactory.

14.3 The manufacturer's Technical literature and Installation instructions have been assessed by BEAL and found to be satisfactory.

Quality

15.1 The quality of the FLEXJOINT EP product supplied by CS NZ Ltd is managed through the use of a Building Product Quality Plan. The 'Building Product Quality Plan' ensures continuous conformance with the quality requirements from purchase to supply of components.

15.2 The FLEXJOINT EP product Building Product Quality Plan is reviewed at least annually by BEAL.

15.5 Quality on site is the responsibility of the trained and approved applicators.

15.6 For a copy of this Technical Literature and any subsequent updates please refer to:

www.cs-group.co.nz

15.7 Building owners or bridge owners are responsible for the maintenance of the building or bridge to ensure the long term performance of the FLEXJOINT EP product.

Sources of Information

- Test Data supplied by the manufacturer
- ISO 9001 certificate for the manufacturer
- The Building Regulations 1992, up to, and including October 2004 Amendment including the Building Code

Concluding statement

16.1 In the opinion of BEAL, the Construction Specialties FLEXJOINT EP Expansion Joints System is fit for purpose and will comply with the NZBC to the extent specified provided that it is used, designed, installed and maintained as set out in this Appraisal Certificate.

The Appraisal Certificate is issued only to Construction Specialties Ltd and is valid until further notification, subject to the conditions of this Appraisal.

Conditions of Appraisal

1. This Appraisal Certificate :
 - A) Relates only to the Construction Specialties FLEXJOINT EP Expansion Joints System as described herein;
 - B) Must be read, considered and used in full together with the Technical Literature
 - C) Does not address any legislation, regulations, codes or standards, not specifically named herein;
 - D) Is copyright of BEAL
2. The Appraisal Certificate holder continues to meet the quality requirements of the Construction Specialties FLEXJOINT EP Expansion Joints System Building Product Quality Plan and has the plan revalidated by BEAL on an annual basis.
3. CS NZ Ltd. shall notify BEAL and obtain approval of any changes in product specification or quality assurance prior to product being marketed including any trade literature, web site info or the like.
4. BEAL makes no representation as to:
 - A) The nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - B) The presence or absence of any patent or similar rights subsisting in the product or any other product;
 - C) Any guarantee or warranty offered by the Appraisal Certificate holder
5. BEAL's verification of the building product or system being able to comply with one or more above-mentioned criteria is given on the basis that the criteria used were those that were appropriate to demonstrate compliance with the NZBC at the date of this Appraisal Certificate. In the event that the criteria is withdrawn or amended at a later date, this Appraisal may no longer remain valid.
6. Any reference in this Appraisal Certificate to any other publication shall be read as a reference to the version of publication specified in this Appraisal Certificate.

Authorised Signatory



C R Prouse - Director
[FEB 2014]

