



Ministry
of Defence



**TECHNICAL EVALUATION FOR MK4
INSULATION PANELS & ANCILLARY
EQUIPMENTS FOR GENERAL SERVICE TENTAGE**

(ISSUE 4)

**Operational Infrastructure (OI)
Defence Equipment & Support (DE&S)
Ministry of Defence**

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INSULATION PANELS & ANCILLARY EQUIPMENTS FOR GENERAL SERVICE TENTAGE V3

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Performance Specification ECI/PS/8002 - Issue Table

Issue	Comments	Date
0.1	Initial Issue	Oct 2011
0.2	Updates from DSTL Report	Mar 2012
0.3	ECI Stakeholder Review	June 2012
1.0	Formal Issue (frozen)	July 2012
2.0	Post ITT Revisions	Aug 2012
3.0	Pre Contract Award Update	Feb 2013
4.0	MK4, Version 4 Update	Dec 2017

TECHNICAL EVALUATION - DRAFT

1. Fit and Function

1.1 Fit into Equipment

Items fit to the dimensions of:

Item No	Name
1.1	12'x 12' GS Shelter
1.2	18'x 24' GS Shelter
1.3	12' Passageway
1.4	4-Way Connector
1.5	Porch

Table 1 – General Service Tentage Configurations

Score: Pass/Fail

1.2 Weight

The Contractor shall state the approximate (within +/- 5kg) all up weight of a complete GS tent insulation, including ancillaries, for each type. As a guide, the products shall be easily installed by no more than 2 persons without the need for specialist or mechanised equipment.

Score: Comparative to the score of the lightest product range
Maximum score 10

1.3 Thickness

The insulation shall not exceed 200 mm and the optimum thickness shall be of less than 100 mm. The Contractor shall state the thickness of his proposed product.

Score: Comparative to the score of the thinnest product
Maximum score 10
Fail if product exceeds 200mm

1.4 Openings

The function of the doors, windows and port panels of the tent shall be maintained. The drawings supplied provide details of the mechanism previously used to achieve this.

Score: Pass/Fail

1.5 Fitting and Accommodation

The Contractor shall show how the insulation layer is to be manufactured to accommodate the openings. Alternative mechanisms to the existing toggle / eyelet system may be considered, provided that the usable internal space is maximised and the fixing is simple to undertake.

Score: Pass/Fail

Section Score: 20

Note: In order to ensure compatibility with the GS Tentage stipulated, the Contractor shall be issued with these shelters in order to allow the production of "1st Offs" samples for approval by the Authority or Authority representative.

2. Fire Resistance

2.1 BS compliance

The insulation panels shall be fire retardant and compliant with British Standard 476 Part 12. The product supplied shall be compliant with both ignition source B and C.

Minimum performance:

1. There will be no Glowing Debris observed
2. There will be no Flaming Debris observed
3. There will be no Flame/Glow to edge within 10 seconds after removal of burner

Score: See attached scoring matrix for Ignition Sources B and C
Score is Pass/Fail for all criteria.

2.2 Testing evidence

The Contractor shall supply Certification from a United Kingdom Accreditation Service (UKAS) accredited independent facility to BS 476 Part 12, ignition source B and C as evidence of compliance to the above.

4 x 1m² samples of the proposed material to be used are to be provided at ITT to the Authority.

Score: Pass/Fail

Notes:

The Authority reserves the right to conduct its own testing of sample panels using an independent UKAS accredited facility to verify/validate fire retardency and any other performance claims made pre and post contract award.

If Samples tested under direction of the Authority fail to meet the performance specification(s) claimed pre contract award the contract bid will be deemed technically non-compliant. If following contract award a sample tested under direction of the Authority fails to meet performance specification(s) the Contractor is liable

Section Score: 40

3. Thermal Conductivity

3.1 Environmental conditions

The product must be capable of being deployed to any environmental conditions. The product shall be capable of effectively working in conditions that range from desert to arctic (C1 Climatic Category -42 Deg C) to desert environments (A3 Climatic Category 42 Deg C) as stated in Def Stan 00-35 part 4.

The Contractor must provide a written statement with any supporting evidence to confirm their product is capable of this requirement as per Def Stan 00-35 part 4.

Score: Pass/Fail

3.2 Thermal Resistance

The product supplied by the Contractor in respect of thermal R_{SI} , k and U values shall be no worse than the values given below, for the existing insulation product. BS 4745 shall be the means against which tests are measured. These figures shall be taken as follows:

1. R_{SI} value to be greater than 0.2485
2. k value to be greater than 0.037
3. U value to be less than 4.03

The Contractor shall provide evidence to confirm these values in the form of Certification from an UKAS accredited independent facility to BS 4745.

Score: Comparative to the score for the best performing product
Maximum score 20 per value

Fail if product is worse than the above stated values or if no evidence of compliance provided.

Section Score: 60

4. Shelf Life

4.1 Service Life

Products shall have a minimum of 18 months, continuous use, service life. The evidence to support this should be made up of spares usage data and / or documentation of the product / material being used in a similar application. The product shall be capable of being deployed and recovered multiple times during the service life.

The evidence should be submitted with a supporting statement to confirm compliance.

Score: Pass/Fail

4.2 Storage Life

Products shall have a minimum 10 year storage life. As a guide this shall be based on a storage depot warehouse or an ISO container but must be rugged enough to be transported and stored in the category A1 to C3 climatic conditions in Def Stan 00-35 Part 4. There are to be no specific storage conditions or maintenance required to the insulation while in storage. A written statement with any supporting evidence to confirm this must be provided.

Score: Pass/Fail

Section Score: Pass/Fail

5. Tolerance and Strength

5.1 Breaking Strength

The product supplied shall be strong enough to withstand the loads applied by the tensioning straps as well as the effect of weather and personnel interaction. A statement must be provided by the Contractor to confirm the proposed product meets this requirement.

Score: Pass/Fail

The Contractor shall supply Certification from an accredited independent facility as evidence of the products compliance with BS EN ISO 13934 Part 1 for woven materials and BS EN 29073 Part 3 for non-woven materials. The rate of extension used shall be included in the results.

Score: Pass/Fail

5.2 Tear Strength

The Contractor shall supply Certification from an accredited independent facility as evidence of the products compliance with BS EN ISO 13937 Part 3: Textiles - Tear Properties of Fabrics - Part 3.

Score: Pass/Fail

5.3 Abrasion Resistance

The Contractor shall supply Certification from an accredited independent facility as evidence of the products compliance with BS EN ISO 12947 Part 2, testing of the surface layer only using the higher loads stated in the standard.

Score: Pass/Fail

5.4 Puncture Resistance

The product supplied shall be strong enough to withstand puncture caused by the movement of panels and handling by users. This applies to the surface layer only. A statement must be provided by the Contractor to confirm the proposed product meets this requirement.

The Contractor shall supply Certification from an accredited independent facility as evidence of the products compliance with BS EN ISO 9073 Part 5, testing of the surface layer only.

Score: Pass/Fail

5.5 Rot and Mould Resistance

The product supplied shall be resistant to rot and mould. The product shall be capable of being deployed into a high humidity environment without any detrimental effect to the materials. The Contractor shall provide a written statement with supporting evidence to confirm the product is resistant to rot and mould.

Score: Pass/Fail

5.6 Stain Resistance

The product shall be resistant to staining from either environmental factors or from normal personnel interactions. The Contractor shall provide a written statement with supporting evidence to confirm the product is resistant to staining.

Score: Pass/Fail

Section Score: Pass/Fail

6. PACKAGING

As a guide to maximum size of the insulation liners for one complete 18'x24' tent shall be capable of fitting into a single Thatcham (2120 mm x 1410 mm x 1100 mm) pallet.

6.1 Fit to Pallet

Evidence must be provided at tender return of the ability to fit within the above mentioned packaging.

Score: Pass/Fail

6.2 Fit by Hand

Evidence that the system can easily fit within a reduced area through the normal packing procedure (by hand).

Score: Pass/Fail

6.3 Storage Area Required

The total area needed to store the 18' x 24' GS tent insulation kit is to be submitted and evidenced at tender return and this will be used to score each submission against all other bidders.

Score: Comparative to the score for the product taking up the least amount of storage space
Maximum score 20

6.4 Supply to Depot

Individual liners shall be supplied to Depot in a non-returnable appropriate transport and storage bag (heavy duty polythene). The Contractor shall demonstrate this requirement to the satisfaction of the Authority.

Score: Pass/Fail

Note:

The transport or storage bag shall prevent any degradation of the panels whilst in transport or storage. Panels shall be secured within the storage bag prior to delivery to the Authority, which may be employed as the outer exterior packaging provided they meet the requirement herein. Spare valise type carriers shall be available as separate items in order to cover an alternative transportation method outwards or when insulation is returned from deployment back to Units. These may be multi-purpose to fit more than one panel(s).

6.5 Packaging Requirements

The Contractor shall comply with any specific packaging requirements stated in the Contract. A statement to this effect must be provided confirming packaging requirements will be met.

Score: Pass/Fail

Section Score: 20

7. PRODUCT MARKING

7.1 Marking

Each item shall be clearly and indelibly marked with the following:

- 5.1.1 Designation,
 - 5.1.2 NATO Stock Number
 - 5.1.3 Contractors Name,
 - 5.1.4 Year of Manufacture,
 - 5.1.5 Contract number,
 - 5.1.6 "Compliant to BS476 Part 12"
 - 5.1.7 Material batch number (traceable back to time of manufacture)
- and,
- 5.1.8 Any other such marking in accordance with the contractor's Quality Assurance/Control procedures or Contract.

Score: Pass/Fail

Section Score: Pass/Fail

8. SUPPORT

8.1 Safety

The Contractor shall provide a suitable safety statement for the product in accordance with JSP 454 and DefStan 00-56. The statement shall cover the following headings: product details, manufacturing standard, operating envelope, conditions of use, applicable legislation and a simple disposal statement in accordance with the template provided.

Score: Pass/Fail

Note:

In this process it is essential that the Contractor consults with the OI team and also the users to ensure that any safety documentation is representative of their combined needs.

8.2 Publications

The Contractor shall provide instruction guides for the installation of the product and any maintenance requirements for the product, including disposal of the product. These shall be incorporated into an update of the Tentage Installation Manual.

Score: Pass/Fail

8.3 Drawings

Following contract award the Contractor is to produce Technical drawings of each of the insulation components for the Authority. Following drawing production to the satisfaction of the Authority the drawings are to be provided to the Authority who will own the drawings and Intellectual Property Rights.

The Technical drawings are to be produced and handed over to the Authority within 6 months of contract award accompanied with a comprehensive Bill of Materials for each component.

The Contractor must also provide a written statement with their Tender confirming they accept the above terms.

Score: Pass/Fail

8.4 Training

The Contractor shall be prepared to provide a 1-day train the trainer package, to allow for the training of 15 personnel, at a suitable location within the UK.

A written statement must be provided if training is necessary, to confirm acceptance of the above terms.

Score: Pass/Fail

Section Score: Pass/Fail

RELATED SPECIFICATIONS AND DOCUMENTS

The following British Standards shall apply to the insulation products to be supplied by the Contractor:

1. BS 476 Pt 12 : 1991 - Method of test for ignitability of products by direct flame impingement.
2. BS EN ISO 13934 Part 1 :2013 – Determination of maximum force and elongation at maximum force using the strip method.
3. BS EN ISO 13937 Part 2 : 2000 – Determination of tear force of trouser-shaped test specimens (Single tear method).
4. BS EN ISO 13937 Part 3: Textiles – Tear Properties of Fabrics.
5. BS EN ISO 12947 Part 2: 2016 Textiles – Determination of the abrasion resistance of fabrics by the Martindale method.. Part 2: Determination of specimen breakdown.
6. BS EN ISO 9073 Part 5:2009 – Determination of resistance to mechanical penetration (ball burst procedure).
7. BS EN 29073 Part 3: 1992 – Determination of tensile strength and elongation.
8. BS 4745: 2005 – Determination of the thermal resistance of textiles – Two plate method: fixed pressure procedure, two plate method: fixed opening procedure, and single plate method.
9. Def Stan 00-35 – Environmental Handbook for Defence Materiel: Part 4 (Issue 4) (Currently Under Review).

10. Def Stan 00-56 – Safety Management Requirements for Defence Systems. Requirements and Guidance: Part 1 (Issue 7).