NFCC
National Fire
Chiefs Council

The professional voice of the
UK Fire & Rescue Service

National Fire Chiefs Council Limited
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Firefighters Personal Protective Equipment

Standard, Specification and Requirements

Structural Firefighting
Tunic and Trouser

Please note that this standard is currently under review by NFCC PPE and Clothing Committee

Collaborative PPE Project - May 2016

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SCOPE

This performance specification describes the requirements for protective fire clothing for both male and female firefighters.

The fire clothing should offer the wearer protection from injuries, which could arise through accidents in the working sector for which the fire clothing is designed.

The fire clothing is to be CE marked to BS EN 469:2005 (level 2); *Protective clothing for firefighters – Performance requirements for protective clothing for firefighting*

PERFORMANCE REQUIREMENTS

Description and Use

Provision of protective fire clothing that meets the general and specific needs of Fire & Rescue Service (FRS) operational personnel.

The product must be suited to the range of structural firefighting, external firefighting and rescue activities carried out during emergency response and training operations. The product must be of such design, robustness, material and specification to meet the needs of these operations. It should also be simple to clean, repair and maintain.

All test performance data must be submitted with tender document, please indicate compliant and submitted where requested. All documentation to be in English.

Firefighting PPE is designed, following a suitable risk assessment, to protect firefighters from risks that cannot be removed by other means.

One potential emerging risk to firefighter's health is exposure to contaminants as a result of the incidents that they attend; some of these contaminants may be carcinogenic.

All Contractors should be mindful of these emerging risks and as such ensure that the PPE is designed to be easily cleaned and decontaminated. In addition methods for identifying that the PPE may be contaminated should also be considered when designing the PPE.

	1. BS EN 469:2005 minimum performance requirements	
2.1	Fire clothing to fully comply with the requirements of BS EN 469:2005, level 2 **Required:** Independent Certification from an organisation belonging to United Kingdom Accreditation Service (UKAS), or equivalent.	
	Additional Information – Required	
2.2	Clause 6.2 EN367:1992 Heat Transfer – Flame: Assembly: HTI^{24} = ≥ 22 sec Assembly: $HTI^{24} – HTI^{12}$ = ≥ 6 sec	
2.3	Clause 6.3 EN ISO 6942:2002 Heat Transfer-Radiation @ 40Kw/m2: Assembly: $RHTI^{24}$ = ≥ 27 sec Assembly: $RHTI^{24} – RHTI^{12}$ = ≥ 9 Sec	
2.4	Clause 6.4 Residual Tensile Strength after EN ISO 6942:2002 method A @ 10Kw/m² = > 1000 N	
2.5	Clause 6.6.1. EN ISO 13934-1 Tensile Strength, method 1 (outer material) = > 1500 N	
2.6	Clause 6.6.2. EN ISO 13935-2:1999 Tensile Strength (seamed outer) = > 310 N	
2.7	Clause 6.7 EN ISO 13937-2:2000 Tear Strength (outer fabric) = > 110 N	
2.8	Clause 6.11 EN20811 Resistance to water penetration (moisture barrier) > 100 kPa	
2.9	Clause 6.11 EN20811 Resistance to water penetration (seamed specimen) Level 2 ≥ 20kPa	

2.10	Clause 6.12 EN31092 Water Vapour Resistance ≤ 20 m^2Pa/W	
2.11	Clause 6.13 Ergonomic performance Annex D or BS EN 13921:2007	
2.12	Garment test results for Instrumented Manikin-Test Method EN ISO 13506:2005 (BS EN 469:2005, annex E) 8s @ 84Kw/m2 RALPH and SOPHIE	Nb. In addition, garments to be supplied for manikin burn at Stage 3 evaluation.
2.13	Compatibility	Must be proven to be compatible with other PPE items recommended in the tender bid (Helmet, Fire Hood, Gloves, and Fire Boots). Especially the combined interaction areas such as the glove and the sleeve. Ease to don and doff. Such as ISO 11999-2: 2015
2.14	Role marking, FRS and personal identification.	Suggestions for easily interchangeable Rank Markings, FRS and personal identification.
2.15	Unique Identification	Details and examples to be submitted and included in pricing schedule. Fire clothing supplied shall be capable of being uniquely identifiable to enable product traceability, such marking may include unique bar-coding and RFIDs tagging. Method to be durable taking into account the use of the item and the recommended cleaning procedures. In addition suitable area for wearer to add their details, if required; and for this to be reusable.
2.16	Comfort	Fire clothing to be comfortable to wear for extensive periods of over one hour. Trousers to have an opening for ease of don and doffing.
2.17	Equality and Diversity	A broad range of sizes to encompass both male and female wearers and those of differing ethnic backgrounds. A wide size range from at least XXS _ XXXL with a range of heights from at least XS-XT

		And the ability to make special sizes if required. Examples to be given and indication of timescales
2.18	Decontamination and Cleaning Wash cycles are a way for services to understand the expected life of a garment and remain assured that the product still remains 'fit for purpose'.	The fire clothing must be easily decontaminated and cleaned. Must still pass BS EN 469:2005 after 40 wash cycles. Independent certification to be provided using methods such as EN ISO 6330: 2012.
2.19	Pockets and attachments	Tunic: radio pocket, glove loop, facility for attachment of rank markings, station/ID number, arm pocket for small notepad. Inner pocket must have facility for attachment of whistle and chain. Inner pockets size must be consistent across size range. Trouser: cargo pockets x 2
2.20	Protection Areas	Knee, Elbow and Shoulder as a minimum
2.21	Collar	Designed so does not 'create' a "funnel" effect.
2.22	Anti-wicking	Tunic: hem and cuffs (cuffing arrangement must be sufficient to prevent any bypass (wicking) to the internal fabric of the sleeve). Trouser: hems Please provide design detail of how anti wicking is achieved.
2.23	Retro-reflective Tape	Requirements of EN469:2005 Annex B Tape should ideally not compromise overall breathability of garments
2.24	Tunic zip to have a quick release system to allow any internal heat to be released and removal of tunic in emergency situations	
2.25	Any Velcro closures or attachments must not damage or interfere with other equipment, such as safety harnesses. In addition use of Velcro should be used in such a way that contamination, such as asbestos is prevented.	

2.26	Lifing	Provide information, in addition to care and maintenance instructions, as to the expected life of the garments. This may be based on number of washes, using methods such as EN ISO 6330: 2112, that the garments maybe subjected to and still pass the requirements of BS EN 469:2005