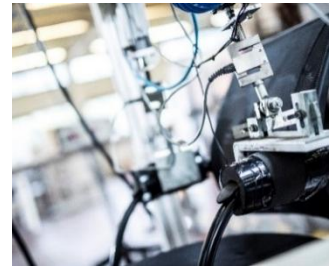


UNDERSTANDING YOUR FURNITURE TEST REPORTS – STRUCTURAL TESTING



Members: Free

Non-Members: £50.00

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Introduction

There are a vast number of British and European standards for all types of furniture products, however, except for the tests required by the UK Furniture and Furnishings (Fire) Safety Regulations (FFFSR), none of these standards are mandatory by law.

So why do they exist?

Many people are surprised to learn that there are no specific regulations for furniture and furnishings beyond those related to flammability.

Instead, furniture and furnishings must adhere to the GB General Product Safety Regulations (GPSR) or the EU General Product Safety Regulations, which stipulate that all products placed on the market must be safe and pose no, or very limited risk to the consumer.

How do manufacturers and retailers ensure that they are fulfilling the GPSR requirements?

The most straightforward way to demonstrate compliance is by testing products according to the most relevant standards. However, there are additional factors to consider beyond the specific requirements of these standards.

Failing to meet the requirements of a standard often requires further investigation to assess the results of the testing. A failure result doesn't necessarily mean that the product is unsafe; the nature of the failure and the stage at which it occurred in the testing process can significantly influence the outcome.

This guide has been created to help manufacturers, retailers, and importers understand the testing process, interpret test results, and relate these findings to the requirements set out in the General Product Safety Regulations.

Most used Standards

Seating

- BS EN 12520: Domestic seating
- BS EN 16139: Non-domestic seating – two test levels
- BS EN 1335-2: Office chairs
- BS 5459: Office chairs for 24 hours a day use up to 150kg user

Tables

- BS EN 12521: Domestic tables
- BS EN 15372: Non-domestic tables – three test levels
- BS EN 527-2: Office tables and desks

Storage

- BS EN 14749: Safety requirements for domestic and kitchen storage units
- BS 4875: Strength and stability of domestic and contract storage furniture – five test levels (from delicate to severe contract use)
- BS 6222: Performance requirements and test methods for domestic fitted kitchen units – two test levels (general and heavy domestic use)
- BS EN 16121: Nondomestic storage – two test levels (general and severe use)

Beds

- BS EN 1725: Adult beds - 2 test levels – domestic and contract
- BS EN 747: Bunk beds and high beds
- BS EN 1957: Functional characteristics of mattresses

Educational furniture

- BS EN 1729-2: Chairs, tables and stools
- BS EN 14434: Writing boards

Children's Furniture

- BS EN 17191: Children's seating
- BS EN 1130: Cribs
- BS 8509: Children's beds for domestic use
- FRQG C001, 3 & 4: Safety requirements for children's table and storage furniture

Nursery Furniture

- BS EN 716: Cots
- BS EN 14988: Highchairs
- BS EN 12221: Changing units

Outdoor Furniture

- BS EN 581-1: Safety requirements for outdoor furniture
- BS EN 581-2: Requirements for outdoor seating – three test levels (camping, domestic and contract)
- BS EN 581-3: Requirements for outdoor tables – three test levels (camping, domestic and contract)

Designated Standards

Whilst standards are not a mandatory requirement, there are a number that have '**designated**' status under EU and UK law – this means that by meeting the requirements of the standard a product is deemed to be considered a safe product as defined by the GPSR.

For a current list of designated standards see Annex A.

The list is constantly under review and can be found at [Standards: general product safety - GOV.UK](#)

Requirements of the General Product Safety Regulations

The Regulations apply to all products sold into the domestic market.

A safe product is any product which, under normal circumstances or reasonably foreseeable conditions of use, poses no risk or only the minimum risk that is compatible with the products intended use, while also ensuring a high level of consumer protection.

One way to show compliance is by testing the product to the relevant standard.

The Furniture Industry Research Association has published two comprehensive guides to the GPSR which are free for members to download from the website - [GB General Product Safety Regulations - Guide for the Furniture Industry](#) and [EU General Product Safety Regulation - Guide for the Furniture Industry](#). Non-members can purchase a copy from the [FIRA Bookshop](#).

Structure of Standards

Standards that deal with the physical properties of products are broken down into six test requirements:

- Safety
- Stability
- Strength
- Durability
- User instructions
- Markings
- Warnings

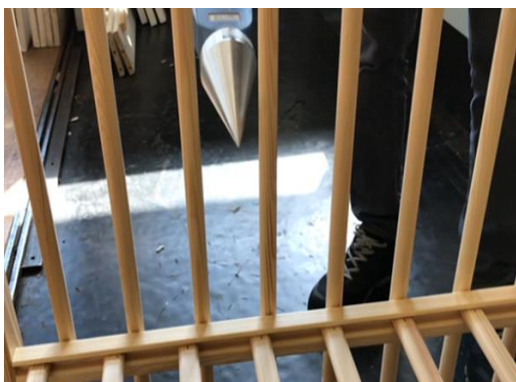
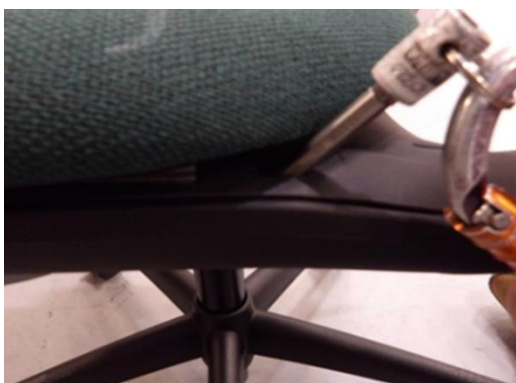
Safety

Safety-related tests and requirements should be strictly followed. These standards are designed to evaluate the safety of specific items and the potential risks they may pose to consumers. They have been established to address identified hazards.

If you have a piece of furniture that does not meet safety requirements, it is important to reassess and redesign the item where possible to eliminate these risks.

Key safety considerations include:

- Edges of the seat, backrest, and armrests, which are in contact with the user when sitting are rounded or chamfered
- All other edges accessible during use shall be free from burrs and/or sharp edges
- Ends of hollow components are closed or capped
- Movable and adjustable parts should be designed so that injuries and inadvertent operation are avoided
- Load-bearing components must not be able to become loose unintentionally
- All parts which are lubricated to assist sliding shall be designed to protect users from lubricant stains when in normal use
- Shear and squeeze points when setting up and folding
- Shear and squeeze points under the influence of powered mechanisms
- Shear and squeeze points during use



Stability

Stability tests assess whether the item is stable or is likely to overturn in the event of a person using the item in its intended use or in any inadvertent way. For example, you would not want an item of furniture to topple if a top drawer was opened and the weight shift caused the unit to overturn, or when sitting on the edge of a table, or leaning sideways on a chair to retrieve paperwork on the floor.



Strength

Product strength is assessed by a series of static loading tests.

These are high levels of loading with only a low number of cycles – to represent high levels of loading that may only occasionally occur during the product life cycle. For example, a vertical static load test may be a high force but only 10 cycles – this may simulate a person standing on the product to reach something - for example standing on a chair or table to reach a light bulb – this would only be expected to occur a few times throughout the product life cycle but is considered foreseeable use of the product.



Durability

These tests are designed to replicate the type of use that would normally occur on a day-to-day basis throughout the product life cycle, considering the intended end use of the product.

Test levels vary depending on the products intended use – for example, a pan draw in a domestic kitchen will endure vastly different levels of use when compared to a cutlery draw in a contract kitchen environment.



User Instructions

- Information for use shall be available in the language of the country in which it will be delivered to the end user. It shall contain at least the following details:
- information regarding the intended use
- if the product is fitted with adjusting mechanisms: instruction for operating the adjusting mechanisms.
- assembly instructions, where applicable.
- instruction for care and maintenance

When it comes to children's and nursery furniture, the information for use requirements is much more prescriptive and the standards often detail the exact wording that must be used:

These instructions shall be headed **"IMPORTANT, RETAIN FOR FUTURE REFERENCE: READ CAREFULLY"** in letters not less than 5 mm high.

Warnings

The instructions for use shall include the following warnings:

The instructions for use shall include the following statements:

Markings

Some standards, particularly relating to children's and nursery products also contain requirements for safety information to be permanently marked on the product – for example, bunk beds are required to be marked with the maximum thickness of the mattress to be used.

The Test Report

TECHNICAL REPORT

firainternational

Proud to be part of 

Unit 3 Cockerell Close

Stevenage

Hertfordshire

SG1 2EW

T: +44(0) 1438 777 700

Our Ref:

Unique report no.

Address of Company

Date:

07 October 2019

Delivery Date:

04 June 2019

Test Dates:

04 June 2019 - 04 October 2019

For the attention of Contact name

SAMPLE(S) SUBMITTED FOR TEST AND IDENTIFED BY CUSTOMER AS:

One, Sample

TEST(S) AS REQUESTED BY CUSTOMER:

RESULT:

BS 8474: 2013 160kg User Level

PASS/FAIL – Point 3

DESCRIPTION

Item:

Sample

Supplied by:

Name

Number of Photos:

One to Four – Point 4

Qty	Item – Point 2	Material- Point 2
1	Seat	4 x 3mm Diameter Metal S-Springs
1	Back	18mm Thick Wood
2	Arms	80mm Thick Wood
1	Mechanism	Metal – Various Sizes
1	Base with Castors	2mm Thick Metal
	Joints	Bolted

BS 8474: 2013 - Furniture – Chairs With Electrically Operated Support Surface – Requirements

Initial Inspection: No apparent faults

Clause	Test	Result
4	General requirements	
4.1	Edges and corners	Pass
4.2	Tubular components accessible during use	Fail – point 3

Clause	Test	Result
5	Strength and durability	
6.4	Seat static load test	Pass
6.4	Back static load test	Pass

Clause	Test	Result
5.3	Stability	
6.2	Forwards overbalancing, all seating.	Pass

Clause	Test	Result
7	Control system requirements	Pass
7.2	Control devices	Pass
8	Marking	Fail – Point 3
9	Information to be supplied by the manufacturer	Pass

CONCLUSION

The **Sample**, as previously described, failed to satisfy the applicable test requirements of BS 8474: 2013 160kg User Level.

Tested by: A person
Reported by: A person
Approved by: A person
Section Head - Structural Testing

Test Report Results

It is essential to understand how to read a test report and to be able to interpret the results. There are several key points to consider:

- **Report Date:** Check the date of the report to ensure that the test date is valid and does not relate to something tested many years ago. An outdated report may not be valid or representative of the current product
- **Product Description:** Verify that the report includes a complete description of the product, including any relevant batch numbers. Providing detailed information to the testing laboratory is essential to ensure the report accurately pertains to the finished product
- **Standards Used:** There are different standards for similar products, depending on the intended end use, such as domestic or contract. With contract level standards, testing criteria may also vary based on the environment in which the product will be used. Guidance on the appropriate test level is typically found in an annex of the standard
- **Test Results:** Understand the test requirements and how they relate to your product. If there is a failure, determine its implications. Assess whether you need to redesign the product or if you can make a commercial decision to proceed with it as is.

Test Report Outcome

Within the test report, several potential outcomes can be reported:

- Pass – the sample met the requirements of the clause
- Fail – the sample failed to meet the requirements of the clause
- N/A – not applicable – the selected clause is not applicable to the product
- N/T - Not tested – the product has not been tested to an applicable clause, reasons could include:
 - **Customer request:** The manufacturer may have submitted the sample for selected testing, e.g. to check stability only
 - **Due to a failure:** For example, if the sample has failed static load tests, then further testing cannot be carried out to the remaining clauses
 - **Unable to test:** Due to product design, it may not be possible for the testing facility to carry out certain tests
 - **Covered by another test report:** For requirements like toxicity or thermal hazard requirements in children's furniture, the laboratory performing the structural testing may not be able to conduct these tests, so they are carried out elsewhere. In this instance, the technical file can be updated

to link the test reports, or the additional reports can be submitted to the test house to be referenced alongside the original test results

- **Not supplied:** This typically applies to essential information, such as user instructions, assembly guidelines, or safety information. The item being tested may be a prototype or development model and the manufacturer may not have this information available at the time of testing. Before placing the product on the market, it's important to verify the requirements - ideally by sending the documents to the testing facility to enable an amended report to be issued
- **Informative:** Some standards do not provide any pass or fail criteria, such as mattress durability tests
- **Inconclusive (very rare):** In cases where a result is considered marginal, it may be recorded as inconclusive. For example, if a slat gap is required to be 60mm or less and is measured at 59.6mm, the testing laboratory will need to consider the accuracy of their measuring device, which may be +/- 1mm, thus, the result could be either a pass or a failure.

Test Report Conclusion

- **Pass:** The tested sample meets all applicable requirements of the standard.
 - **Pass*:** The sample meets all clauses tested to, but not all applicable clauses have been used. such as missing information for use. It is crucial to ensure that these exceptions do not compromise the product's safety
- n.b.** Where not all clauses of a standard have been tested to, this will be clearly marked on the test report along with the reason for their omission. Full compliance with the standard has not been achieved. When testing to a designated standard, this would mean that compliance with the GPSR has not been demonstrated.
- **Fail:** The tested sample did not meet one or more applicable clauses. The report should provide detailed information about the mode of failure and specify when the failure occurred during the testing process, including photographs. This information enables the supplier to make informed commercial decisions on how to address the failure.

Annex A - List of Currently Designated Standards

EN 16890:2017+A1:2021 Children's furniture – Mattresses for cots and cribs – Safety requirements and test methods

EN 17191:2021 Children's Furniture – Seating for children – Safety requirements and test methods

EN 581-1:2006 Outdoor furniture - Seating and tables for camping, domestic and contract use - Part 1: General safety requirements

EN 716-1:2017+AC:2019 Furniture – Children's cots and folding cots for domestic use – Part 1: Safety requirements

EN 1129-1:1995 Furniture - Foldaway beds - Safety requirements and testing - Part 1: Safety requirements

EN 1129-2:1995 Furniture - Foldaway beds - Safety requirements and testing - Part 2: Test methods

EN 1130:2019 Children's furniture – Cribs – Safety requirements and test methods

EN 1466:2014 Child use and care articles – Carry cots and stands – Safety requirements and test methods

EN 12221-1:2008+A1:2013 Child use and care articles - Changing units for domestic use - Part 1: Safety requirement

EN 12221-2:2008+A1:2013 Child use and care articles - Changing units for domestic use - Part 2: Test methods

EN 14988:2017+A1:2020 Children's highchairs – Requirements and test methods



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