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## FLEXIFORM BUSINESS FURNITURE LIMITED

1392 Leeds Road  
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Our Ref: TSSEF84710/A\*  
Date: 17 July 2019  
Delivery Date: 28 January 2019  
Test Dates: 31 January 2019 - 05 April 2019

For the attention of Andy Heath

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

One, Ole Wooden Shell Chair Chrome 4 Leg Frame  
One, Ole Wooden Shell Chair Chrome 4 Leg Frame - Modification 1  
One, Ole Wooden Shell Chair Chrome 4 Leg Frame - Modification 2

## TEST(S) AS REQUESTED BY CUSTOMER:

## RESULT:

BS EN 16139: 2013 Test Level 1

Pass^\*

^Excluding Information for Use.

\*See Comments.

Technical report references marked \* indicate this report is supplementary to the previous report with the same reference

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FIRA International  
Registered office: 10 Lower Grosvenor Place,  
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Registered in England No: 3181481

# TECHNICAL REPORT

## DESCRIPTION

Item: Ole Wooden Shell Chair Chrome 4 Leg Frame  
Supplied by: **FLEXIFORM BUSINESS FURNITURE LIMITED**  
Number of Photos: One to Sixteen

All dimensions are approximate.

Quantity	Part Name	Material
1	Seat	Wood 13mm Thick
1	Back	Wood 13mm Thick
2	Arms	Wood 13mm Thick
4	Legs	Metal 16mm Diameter
	Joints	Screws
	Weight = 5.8kg	

### Modification 1

As original sample except with two 18mm thick plastic spacers placed between the front legs and seat pad.

### Modification 2

As Modification 1 except with two additional plastic 15mm diameter spacers glued under the seat pad to prevent shear & squeeze issue.

## PRECONDITIONING AND MOISTURE CONTENT

FIRA International cannot validate date of manufacture and therefore it is assumed that at least 4 weeks has elapsed between date of manufacture and delivery to FIRA International.

Unless otherwise stated on the first page of this report the sample was stored in indoor ambient conditions for at least the minimum duration as required by this standard prior to test.

Wherever possible timber moisture content is verified prior to test. Where this is not possible the moisture content is assumed to be in the range 8 – 12 %.



# TECHNICAL REPORT

## **BS EN 16139: 2013 - Furniture – Strength, Durability and Safety – Requirements for Contract Seating**

The tests required were carried out in accordance with the standard. Where applicable details of the loads applied and their positions of application are retained at FIRA International and are available on request. Structural testing machines are set to operate at the tolerances stated in the standard. Uncertainty of Measurement calculations have not been applied. FIRA International Uncertainty of Measurement values are available on request.

Item: Ole Wooden Shell Chair Chrome 4 Leg Frame

Initial Inspection: No apparent faults

Clause	Test	Result
4.1	<b>General requirements</b> (Clause Ref: BS EN 16139: 2013)	
a	accessible corners are rounded or chamfered;	Pass
b	the edges of the seat, back rest and arm rests which are in contact with the user when sitting in the chair are rounded or chamfered;	Pass
c	the edges of handles are rounded or chamfered in the direction of the force applied;	N/A
d	all other edges are free from burrs and rounded or chamfered;	Pass
e	the ends of hollow components are closed or capped.	Pass
	Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided.	N/A
	It shall not be possible for any load bearing part of the seating to come loose unintentionally.	Pass
	All parts which are lubricated to assist sliding shall be designed to protect users from lubricant stains when in normal use.	N/A
4.2	<b>Shear and squeeze points</b>	
4.2.1	Shear and squeeze points when setting up and folding.	N/A
4.2.2	Shear and squeeze points under influence of powered mechanism.	N/A
4.2.3	Shear and squeeze points during use.	Pass*

\*See Comments.

In extreme weather conditions the ambient test temperature and/or humidity may fall outside the requirements of the standard. Such changes have not been shown to affect the validity of the results. Details of the ambient conditions at time of test are available on request.



# TECHNICAL REPORT

## **BS EN 16139: 2013 - Furniture – Strength, Durability and Safety – Requirements for Contract Seating**

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Item: Ole Wooden Shell Chair Chrome 4 Leg Frame

Initial Inspection: No apparent faults

Clause	Test	Result
4.3.3	<b>Stability: non-swivel chairs only</b> (Clause Ref: BS EN 1022: 2005)	
6.2	Forwards overbalancing, all seating.	Pass
6.3	Forwards overturning for seating with footrest.	N/A
6.4	Sideways overbalancing, all seating without arms.	N/A
6.5	Sideways overbalancing, all seating with arms.	Pass
6.6	Rearwards overbalancing, all seating with backs.	Pass
7.3	Tilting chairs.	N/A
7.4	Rocking chairs.	N/A
7.5	Reclining chairs with footrest.	N/A
7.7	Reclining chairs without footrest.	N/A

Clause	Test	Result
4.4	<b>Rolling resistance of the unloaded chair</b> (Clause Ref: EN 16139: 2013)	
a	The rolling resistance is $\geq 12$ N when tested according to EN 1335-3:2009, 7.4;	N/A
b	All castors are of the same type	N/A

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# TECHNICAL REPORT

## **BS EN 16139: 2013 - Furniture – Strength, Durability and Safety – Requirements for Contract Seating**

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Item: Ole Wooden Shell Chair Chrome 4 Leg Frame

Initial Inspection: No apparent faults

Clause	Test	Result
4.3.2	<b>Stability: swivel chairs only</b> (Clause Ref: BS EN 1335: 2009) *Clause Ref: 1022: 2005	
7.1.1	Front edge overbalancing.	N/A
7.1.2	Forwards overbalancing.	N/A
*6.3	Forwards overturning for seating with footrest.	N/A
7.1.4	Sideways overbalancing, all seating without arms.	N/A
7.1.5	Sideways overbalancing, all seating with arms.	N/A
7.1.6	Rearwards overturning - without back rest inclination.	N/A
7.1.7	Rearwards overturning - with back rest inclination.	N/A

Clause	Test	Result
7	<b>Information for use</b> (Clause Ref: BS EN 16139: 2013)	
a	Information regarding the intended use;	Not Supplied
b	If the chair is fitted with adjusting mechanisms: instruction for operating the adjusting mechanisms;	N/A
c	Assembly instructions, where applicable;	N/A
d	Instruction for care and maintenance of the chair;	Not Supplied
e	If the seating is fitted with castors: information on the choice of castors in relation to the floor surface;	N/A
f	If the seating is fitted with adjustment mechanisms comprising an energy accumulator, an additional note is required pointing out that only instructed personnel may replace and maintain adjustment mechanisms containing energy accumulators.	N/A

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# TECHNICAL REPORT

## **BS EN 16139: 2013 - Furniture – Strength, Durability and Safety – Requirements for Contract Seating**

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Item: Ole Wooden Shell Chair Chrome 4 Leg Frame

Initial Inspection: No apparent faults

Clause	Test	Result
5.4	<b>Strength and durability</b> (Clause Ref: BS EN 1728: 2012)	
6.4	Seat static load test.	Pass
6.4	Back static load test.	Pass
6.4	Additional seat static load test.	N/A
6.4	Additional back static load test.	N/A
6.5	Seat front edge static load test.	Pass
6.6	Vertical static load on back.	Pass
6.8 & 6.9	Foot rest static load test.	N/A
6.10	Arm rest sideways static load test.	Pass
6.11	Arm rest downwards static load test.	Pass
6.13.1 & 6.13.2	Vertical upwards static load on arm rests.	N/A
6.17	Seat durability test (Seat position 1).	Pass
6.17	Seat durability test (Seat position 2).	N/A
6.17	Back durability test (Back position 1).	Pass
6.17	Back durability test (Back position 2).	N/A
6.17	Additional seat durability test.	N/A
6.17	Additional back durability test.	N/A

In extreme weather conditions the ambient test temperature and/or humidity may fall outside the requirements of the standard. Such changes have not been shown to affect the validity of the results. Details of the ambient conditions at time of test are available on request.



# TECHNICAL REPORT

## **BS EN 16139: 2013 - Furniture – Strength, Durability and Safety – Requirements for Contract Seating**

The tests required were carried out in accordance with the standard. Where applicable details of the loads applied and their positions of application are retained at FIRA International and are available on request. Structural testing machines are set to operate at the tolerances stated in the standard. Uncertainty of Measurement calculations have not been applied. FIRA International Uncertainty of Measurement values are available on request.

Item: Ole Wooden Shell Chair Chrome 4 Leg Frame

Initial Inspection: No apparent faults

Clause	Test	Result
	(Clause Ref: BS EN 1728: 2012)	
6.18	Seat front edge durability test (ALT).	Pass
6.18	Seat front edge durability test (SLP).	N/A
6.20	Arm rest durability test.	Pass
6.21	Foot rest durability test.	N/A
6.15	Leg forwards static load test.	Pass
6.16	Leg sideways static load test.	Pass
6.24	Seat impact test.	Pass
6.25	Back impact test.	Pass
6.26	Arm impact test.	Pass
6.27.1	Drop test (multiple seating).	N/A
6.14	Auxiliary writing surface static load test.	N/A
6.22	Auxiliary writing surface durability test.	N/A

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# TECHNICAL REPORT

## COMMENTS

The initial sample of the Ole Wooden Shell Chair Chrome 4 Leg Frame, as previously described, had failed general safety requirements for BS EN 16139: 2013. Located on the two front legs were squeeze points, created during use between the frame and seat pad.

A modified sample was submitted (Modification 1), that failed to remove the squeeze points issue. A second modified sample was then submitted (Modification 2), that subsequently met this requirement.

## CONCLUSION

The Ole Wooden Shell Chair Chrome 4 Leg Frame (with modifications), as previously described, successfully satisfied the applicable test requirements of BS EN 16139: 2013 Test Level 1 - Excluding Information for Use.

Tested by:	S Crisp
Reported by:	G Wright & S Hackett
Approved by:	L Haines
	Section Head - Structural Testing



# TECHNICAL REPORT



Photo 1 - Ole Wooden Shell Chair  
Chrome 4 Leg Frame



Photo 2 - Ole Wooden Shell Chair  
Chrome 4 Leg Frame



Photo 3 - Ole Wooden Shell Chair  
Chrome 4 Leg Frame



Photo 4 - Ole Wooden Shell Chair  
Chrome 4 Leg Frame

# TECHNICAL REPORT



Photo 5 - Ole Wooden Shell  
Chair Chrome 4 Leg Frame -  
Failure Detail



Photo 6 - Ole Wooden Shell  
Chair Chrome 4 Leg Frame -  
Failure Detail



Photo 7 - Ole Wooden Shell  
Chair Chrome 4 Leg Frame -  
Modification 1



Photo 8 - Ole Wooden Shell  
Chair Chrome 4 Leg Frame -  
Modification 1



Photo 9 - Ole Wooden Shell  
Chair Chrome 4 Leg Frame -  
Modification 1



Photo 10 - Ole Wooden Shell  
Chair Chrome 4 Leg Frame -  
Modification 1

# TECHNICAL REPORT



Photo 11 - Ole Wooden Shell  
Chair Chrome 4 Leg Frame -  
Modification 1 - Failure Detail



Photo 12 - Ole Wooden Shell  
Chair Chrome 4 Leg Frame -  
Modification 1 - Failure Detail



Photo 13 - Ole Wooden Shell  
Chair Chrome 4 Leg Frame -  
Modification 2



Photo 14 - Ole Wooden Shell  
Chair Chrome 4 Leg Frame -  
Modification 2



Photo 15 - Ole Wooden Shell  
Chair Chrome 4 Leg Frame -  
Modification 2



Photo 16 - Ole Wooden Shell  
Chair Chrome 4 Leg Frame -  
Modification 2

\*\*\*\*\*End of Report\*\*\*\*\*