

Test Report	No.: SHHL1909052908FT	Date: OCT. 11, 2019	Page: 1 of 8
ZENITH INTERIORS (SHAN	IGHAI) CO LTD		
L1, BLDN 2, 1788 HANGTA	NG RD, JINHUI TOWN, FENGXI	AN SHANGHAI 201405 C	HINA

Sample Description	: JAC SIDE ARCHITECTURAL TIMBER CHAIR

Sample Receiving Date	: SEP. 23, 2019
Testing Period	: SEP. 23, 2019 TO OCT. 11, 2019
Test Performed	: SELECTED TEST(S) AS REQUESTED BY APPLICANT
Test Requested	: ANSI/BIFMA X5.1-2017: GENERAL-PURPOSE OFFICE
	CHAIR- AMERICAN NATIONAL STANDARD FOR
	OFFICE FURNITURE
Test Result(s)	: FOR FURTHER DETAILS, PLEASE REFER TO THE
	FOLLOWING PAGE(S)
Conclusion	: THE SUBMITTED SAMPLE MET THE TEST
	REQUIREMENT.

Signed for and on behalf of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Melooly



Melody Zhang Authorized Signatory



of email: <u>CNLDOCENECK2055</u> # Building, No.889, Yishan Road, Xuhu Disind, Shanghai, China 200233 t (86) 400 960 9661 f (86—21) 6115 6899 www.sgsgroup.com.cn 中国 - 上海 - 徐汇区宜山路889号4号楼 邮编: 200233 t (86) 400 960 9661 f (86—21) 6115 6899 e sgs.china@sgs.com



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Test Conducted:

Test Report

ANSI/BIFMA X5.1-2017: General-Purpose Office Chair- American National Standard For Office Furniture

Testing Condition	:	All the physical test is carry out in indoor ambient.
Nos. of Specimen	:	3 pc(s).
Type of Chair	:	Туре III
Test Result	:	Pass

Test Property	Test Method	Test Principle / Requirements	Results
Back Strength Test -	ANSI/BIFMA	No loss of serviceability when 667 N	N/A
Static - Type I (Functional Load)	X5.1 -2017 Clause 5	(150 lbs.) is applied for 1 min. Applied 70° to the back at 16 in. above the seat.	See note 1
Back Strength Test –	ANSI/BIFMA	No sudden and major change in the	N/A
Static – Type I (Proof Load)	X5.1 -2017 Clause 5	structural integrity (loss of serviceability is acceptable) when 1001 N (225 lbs.) is	See note 1
,		applied for 1 min. Applied 70° to the back at 16 in. above the seat.	
Back Strength Test –	ANSI/BIFMA	No loss of serviceability when 667 N	Pass
Static – Type II & III (Functional Load)	X5.1 -2017 Clause 6	(150 lbs.) is applied for 1 min. Applied 70° to the back at 16 in. above the seat.	
Back Strength Test – Static – Type II & III (Proof Load)	ANSI/BIFMA X5.1 -2017 Clause 6	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when 1001 N (250 lbs.) is applied for 1 min. Applied 70° to the back at 16 in. above the seat.	Pass
Drop Test – Dynamic	ANSI/BIFMA	No loss of serviceability when 102kg	Pass
(Functional Load)	X5.1 -2017 Clause 7	(225 lbs.) weight free falls from 6 in height to the center of the seat.	
Drop Test – Dynamic (Proof Load)	ANSI/BIFMA X5.1 -2017 Clause 7	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when 136kg (300 lbs.) weight free falls from 6 in height to the center of the seat.	Pass
Swivel Test – Cyclic	ANSI/BIFMA X5.1 -2017 Clause 8	No loss of serviceability after 60,000 cycles of rotation (360°) under a 122kg	N/A See note 1
	AS.1 -2017 Glause o	(270 lbs.) load on the seat at its max. height. Seat shall then withstand another 60,000 cycles of rotation at its lowest seating position. Total 120,000 cycles.	
Tilt Mechanism Test –	ANSI/BIFMA	No loss of serviceability after 300,000	N/A
Cyclic – Type I & II	X5.1 -2017 Clause 9	cycles under a 109kg (240 lbs.) load to the center of the seat	See note 1



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Test Property	Test Method	Test Principle / Requirements	Results
Impact test	ANSI/BIFMA X5.1 -2017 Clause 10.3	No loss of serviceability in 100,000 cycles impact. A weight of 57kg (125 lbs.) free falls onto the seat from 1.4 in. height.	Pass
Front Corner Load Ease Test – Cyclic – Off Center	ANSI/BIFMA X5.1 -2017 Clause 10.4	No loss of serviceability after load each seat front corner with 890N (200 lbs.) for 20,000 cycles, total 40,000 cycles. Note: this test is done after "Impact test" on the same sample.	Pass
Stability Test - Rear Stability for Type III Chairs	ANSI/BIFMA X5.1 -2017 Clause 11.3.1	 Load the chair with 6 disks, apply a horizontal force to the highest disk, The location of the force application is 6 mm (0.25 in.) from the top of the disk. For chairs with seat height less than 710 mm (28.0 in.), calculate the force as follows: F = 0.1964 (1195 – H) Newton. H is the seat height in mm. [F = 1.1 (47 – H) pounds force.]. H is the seat height in inches. For chairs with seat height equal to or greater than 710 mm (28.0 in.), a fixed force of 93 N (20.9 lbf.) shall be applied. The chair shall not tip over. 	Pass
Stability Test - Rear Stability for Type I and II Chairs	ANSI/BIFMA X5.1 -2017 Clause 11.3.2	Load the chair with 13 disks, place the first disk on the seat so it touches the support fixture. The chair shall not tip over.	N/A See note 1
Stability Test – Front Stability	ANSI/BIFMA X5.1 -2017 Clause 11.4	The chair is obstructed with a 13mm ($\frac{1}{2}$ in.) obstruction to the chair casters/legs. A downward load of 61kg (135 lbs.) is centered 60mm (2.4 in.) from the seat front center edge. The seat shall withstand a 20N (4.5 lbf.) horizontally from the front seat edge without tipping.	Pass
Arm Strength Test Vertical – Static (Functional Load)	ANSI/BIFMA X5.1 -2017 Clause 12	No loss of serviceability when 750N (169 lbs.) is applied for 1 min. The vertical load is uniformly applied along a 127mm (5 in.) length at the apparent weakest point.	N/A See note 1
Arm Strength Test Vertical –Static (Proof Load)	ANSI/BIFMA X5.1 -2017 Clause 12	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when 1125N (253 lbs.) is applied for 15 seconds. The vertical load is uniformly applied along a 127mm (5 in.) length at the apparent weakest point.	N/A See note 1





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Test Property	Test Method	Test Principle / Requirements	Results
Arm Strength Test	ANSI/BIFMA	No loss of serviceability when 445N (100	N/A
	X5.1 -2017 Clause	lbs.) for 1 min. is applied horizontally	See note 1
(Functional Load)	13	outward to the armrest at the most	
		forward point of the armrest.	N1/A
Arm Strength Test Horizontal – Static	ANSI/BIFMA	No sudden and major change in the	N/A See note 1
(Proof Load)	X5.1 -2017 Clause 13	structural integrity (loss of serviceability is acceptable) when 667N (150 lbs.) for	See note 1
	10	15 seconds. is applied horizontally	
		outward to the armrest at the most	
		forward point of the armrest.	
5	ANSI/BIFMA X5.1 -	No loss of serviceability in 120,000	N/A
Cyclic – Type I	2017 Clause 14	cycles with a 109kg (240 lbs.) in the	See note 1
		center of the seat and a 445N (100 lbf.)	
		90° to the center of the chair back. For	
		chairs with a back width greater than 406mm (16 in.), test at the center of	
		chair back for 80,000 cycles and then	
		102mm (4 in.) off-center 40,000 cycles,	
		half to each side.	
5	ANSI/BIFMA X5.1 –	No loss of serviceability in 120,000	Pass
Cyclic – Type II & III	2017 Clause 15	cycles with a 109kg (240 lbs.) in the	
		center of the seat and a 334N (75 lbf.)	
		90° to the center of the chair back. For	
		chairs with a back width greater than 406mm (16 in.), test at the center of	
		chair back for 80,000 cycles and then	
		102mm (4 in.) off-center 40,000 cycles,	
		half to each side.	
Caster / Chair Base	ANSI/BIFMA X5.1 -	No loss of service after 2,000 cycles	N/A
Durability Test For	2017 Clause 16.1	over a hard surface with 3 obstacles and	See note 1
Pedestal Base Chair		98, 000 cycles over a smooth hard	
		surface without obstacles under a 122kg	
		(270 lbs.) load on the seat. Test stroke is 762mm (30 in.) minimum. The caster	
		should not separate under 22N (5 lbs.)	
		pulling force in line with the caster stem	
		after the cycling test.	
Caster / Chair Base	ANSI/BIFMA X5.1 -	No loss of service after 2,000 cycles	N/A
Durability Test For	2017 Clause 16.2	over a hard surface with 2 obstacles and	See note 1
Chairs with Legs		98, 000 cycles over a smooth hard	
		surface without obstacles under a 122kg	
		(270 lbs.) load on the seat. Test stroke is 762mm (30 in.) minimum. The caster	
		should not separate under 22N (5 lbs.)	
		pulling force in line with the caster stem	
		after the cycling test.	



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Test Property	Test Method	Test Principle / Requirements	Results
Leg Strength Test – Front Load (Functional Load)	ANSI/BIFMA X5.1 - 2017 Clause 17.3	No loss of serviceability when a force of 334N (75 lbf.) is applied to each front leg individually for 1 minute.	Pass
Leg Strength Test – Front Load (Proof Load)	ANSI/BIFMA X5.1 - 2017 Clause 17.3	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when a force of 503N (113 lbf.) is applied to each front leg individually for 1 minute.	Pass
Leg Strength Test – Side Load (Functional Load)	ANSI/BIFMA X5.1 - 2017 Clause 17.4	No loss of serviceability when a force of 334N (75 lbf.) is applied once to each front and rear leg individually for 1 minute.	Pass
Leg Strength Test – Side Load (Proof Load)	ANSI/BIFMA X5.1 - 2017 Clause 17.4	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when a force of 503N (113 lbf.) is applied once to the front and rear leg individually for 1 minute.	Pass
Footrest Static Load Test – Vertical- Functional load (If applicable)	ANSI/BIFMA X5.1 - 2017 Clause 18.4.1	Apply a force F1 of 445 N (100 lbf.) uniformly along a 102 mm (4 in.) distance along the footrest but not greater than 51 mm (2 in.) from the outside edge at the apparent weakest point of the structure for one (1) minute in the vertical downward direction, maintain force F1 and apply an additional force F2 of 445 N (100 lbf.) to the footrest at the opposing position for an additional one (1) minute. There shall be no loss of serviceability or sudden loss of footrest height.	N/A See note 1
Footrest Static Load Test – Vertical-Proof load (If applicable)	ANSI/BIFMA X5.1 - 2017 Clause 18.4.3	Apply a force of 1334 N (300 lbf.) uniformly along a 102 mm (4 in.) distance along the footrest but not greater than 51 mm (2 in.) from the outside edge at the apparent weakest point of the structure for one (1) minute in the vertical downward direction. The load applied once shall cause no sudden and major change in the structural integrity of the unit. Loss of serviceability is acceptable.	N/A See note 1
Footrest Durability Test – Vertical – Cyclic (If applicable)	ANSI/BIFMA X5.1 - 2017 Clause 19	No loss of serviceability after 50,000 cycles of a 890N (200 lbf) load vertical along 102mm (4 in.) length of the footrest at the apparent weakest point of the structure.	N/A See note 1





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Test Property	Test Method	Test Principle / Requirements	Results
Arm Durability Test – Cyclic	ANSI/BIFMA X5.1 - 2017 Clause 20	No structural breakage or loss of serviceability when a force of 400N (90 lbf.) is applied to each arm at a 10° angle $\pm 1^{\circ}$ for 60,000 cycles	N/A See note 1
Out Stop Tests For Chairs With Manually Adjustable Seat Depth (If applicable)	ANSI/BIFMA X5.1 - 2017 Clause 21	Place 74 kg (163 lb.) rigid mass in the center of the seat, 25 kg (55lbf.) hanging weight shall be held at its most rearward position, then released, permitting it to move forward rapidly and impact the out stops. Repeat for a total of 25 cycles. There shall be no loss of serviceability to the unit.	N/A See note 1
Tablet Arm Static Load Test (If applicable)	ANSI/BIFMA X5.1 - 2017 Clause 22	Apply a load of 68 kg (150 lb.) through a 203 mm diameter area 25 mm from the edge of the surface at its apparent weakest point, for one (1) minutes. Shall cause no sudden and major change in the structural integrity of the chair at the first load, and after performing the test, the tablet arm must allow egress form the unit; other losses of serviceability are acceptable.	N/A See note 1
Tablet Arm Load Ease Test – Cyclic (If applicable)	ANSI/BIFMA X5.1 - 2017 Clause 23	A 25kg (55 lb.) bag shall be raised until the entire weight is off the tablet surface and then eased (without impact) onto the surface, repeat for a total of 100,000 cycles without loss of serviceability to the unit.	N/A See note 1
Structural Durability Test – Cyclic	ANSI/BIFMA X5.1 - 2017 Clause 24	Place a weight of 109kg (240lbf) in the center of the seat. Apply a force of 334N (75lbf) at an appropriate for 25000cycles by a cycling device. There shall be no loss of serviceability	Pass
Informative - Base Test – Static	ANSI/BIFMA X5.1 -2017 Appendix C	No sudden and major change in the structural integrity under 11,120 N (2500 lbs.) compression for 1 min. The weight is then removed and reapplied for 1 min. The center column may not touch the test platform during load applications.	N/A See note 1



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Test Property	Test Method	Test Principle / Requirements	Results
Informative – Simultaneous side legs strength test	ANSI/BIFMA X5.1 -2017 Appendix H	The chair shall be placed on a test platform with the side legs restrained by a block 11 to 38mm high. All adjustments shall be set at normal use conditions. A force of 334N (75lbs.) per leg shall be applied once to a front and rear leg simultaneous for one minute. Remove force, there shall be no loss of serviceability.	Pass

Note : # 1- N/A means not applicable to this product design.

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Sample Photo:

Received sample view 1



Received sample view 2



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