

**Test Report** No.: SHHL1909052902FT Date: OCT. 10, 2019 Page: 1 of 8

## ZENITH INTERIORS (SHANGHAI) CO LTD

L1, BLDN 2, 1788 HANGTANG RD, JINHUI TOWN, FENGXIAN SHANGHAI 201405 CHINA

Sample Description : JAC ARCHITECTURAL TIMBER STOOL

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Sample Receiving Date : SEP. 23, 2019

Testing Period : SEP. 23, 2019 TO OCT. 10, 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.

Melody Zhang

Authorized Signatory





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## **Test Conducted:**

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 : 2 pcs.

Type of Chair : TYPE III

Test Result : PASS

Test Property	Test Method	Test Principle / Requirements	Results
Back Strength Test - Static -Type I (Functional Load)	ANSI/BIFMA X5.1 -2017 Clause 5	No loss of serviceability when 667 N (150 lbs.) is applied for 1 min. Applied 70° to the back at 16 in. above the seat.	N/A See note 1
Back Strength Test – Static – Type I (Proof Load)	ANSI/BIFMA X5.1 -2017 Clause 5	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when 1001 N (225 lbs.) is applied for 1 min. Applied 70° to the back at 16 in. above the seat.	N/A See note 1
Back Strength Test – Static – Type II & III (Functional Load)	ANSI/BIFMA X5.1 -2017 Clause 6	No loss of serviceability when 667 N (150 lbs.) is applied for 1 min. Applied 70° to the back at 16 in. above the seat.	N/A See note 1
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.	N/A See note 1
Drop Test – Dynamic (Functional Load)	ANSI/BIFMA X5.1 -2017 Clause 7	No loss of serviceability when 102kg (225 lbs.) weight free falls from 6 in height to the center of the seat.	Pass
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 (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.	N/A See note 1
Tilt Mechanism Test – Cyclic – Type I & II	ANSI/BIFMA X5.1 -2017 Clause 9	No loss of serviceability after 300,000 cycles under a 109kg (240 lbs.) load to the center of the seat	N/A 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 (½ 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 Horizontal – Static (Functional Load)	ANSI/BIFMA X5.1 -2017 Clause 13	No loss of serviceability when 445N (100 lbs.) for 1 min. is applied horizontally outward to the armrest at the most forward point of the armrest.	N/A See note 1
Arm Strength Test Horizontal – Static (Proof Load)	ANSI/BIFMA X5.1 -2017 Clause 13	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when 667N (150 lbs.) for 15 seconds. is applied horizontally outward to the armrest at the most forward point of the armrest.	N/A See note 1
Back Durability Test – Cyclic – Type I	ANSI/BIFMA X5.1 - 2017 Clause 14	No loss of serviceability in 120,000 cycles with a 109kg (240 lbs.) in the 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.	Pass N/A See note 1
Back Durability Test – Cyclic – Type II & III	ANSI/BIFMA X5.1 – 2017 Clause 15	No loss of serviceability in 120,000 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.	N/A See note 1
Caster / Chair Base Durability Test For Pedestal Base Chair	ANSI/BIFMA X5.1 - 2017 Clause 16.1	No loss of service after 2,000 cycles over a hard surface with 3 obstacles and 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.	N/A See note 1
Caster / Chair Base Durability Test For Chairs with Legs	ANSI/BIFMA X5.1 - 2017 Clause 16.2	No loss of service after 2,000 cycles over a hard surface with 2 obstacles and 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.	N/A See note 1



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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.	Pass
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.	Pass
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.	Pass



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Test Property	Test Method	Test Principle / Requirements	Results
Arm Durability Test –	ANSI/BIFMA X5.1 -	No structural breakage or loss of	N/A
Cyclic	2017 Clause 20	serviceability when a force of 400N (90	See note 1
		lbf.) is applied to each arm at a 10° angle	
2 . 2 . 5	44101/DIE144	±1º for 60,000 cycles	N1/A
Out Stop Tests For	ANSI/BIFMA X5.1 -	Place 74 kg (163 lb.) rigid mass in the	N/A
Chairs With Manually Adjustable Seat Depth (If	2017 Clause 21	center of the seat, 25 kg (55lbf.) hanging weight shall be held at its most rearward	See note 1
applicable)		position, then released, permitting it to	
applicable)		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.	
Tablet Arm Static Load	ANSI/BIFMA X5.1 -	Apply a load of 68 kg (150 lb.) through a	N/A
Test (If applicable)	2017 Clause 22	203 mm diameter area 25 mm from the	See note 1
		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.	
Tablet Arm Load Ease	ANSI/BIFMA X5.1 -	A 25kg (55 lb.) bag shall be raised until	N/A
Test - Cyclic (If	2017 Clause 23	the entire weight is off the tablet surface	See note 1
applicable)		and then eased (without impact) onto the	
,		surface, repeat for a total of 100,000	
		cycles without loss of serviceability to the	
		unit.	
Structural Durability Test	ANSI/BIFMA X5.1 -	Place a weight of 109kg (240lbf) in the	N/A
- Cyclic	2017 Clause 24	center of the seat. Apply a force of 334N	See note 1
		(75lbf) at an appropriate for 25000cycles by a cycling device.	
		There shall be no loss of serviceability	
Informative -	ANSI/BIFMA	No sudden and major change in the	N/A
Base Test – Static	X5.1 -2017	structural integrity under 11,120 N (2500	See note 1
	Appendix C	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.	



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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

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

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## **Sample Photo:**

Received sample view 1



Received sample view 3



Received sample view 2



Received sample view 4



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



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