

Date: Sep 06, 2018

Sample Description:

One (1) piece of submitted sample said to be :

Item Name : Single Motor Height Adjustable Desk.

Item No. : Manufacturer :

Date Sample Received : Jul 25, 2018.



Tests conducted:

As requested by the applicant, refer to attached page(s) for details.

Conclusion:

<u>Tested Sample</u> <u>Standard</u> <u>Result</u> Submitted Sample ANSI/BIFMA X5.5-2014 Desk/Table Products - Tests Pass

Authorized by:

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Tests Conducted For Intertek Testing Services



Ben N.L. Lin

General Manager

# 1 <u>Desk/Table Products – Tests</u>

Test standard: ANSI/BIFMA X5.5-2014 - Desk/Table Products - Tests.

Number of sample tested: One (1) piece.

Categories of desks/tables: Category I.

Initial inspection: No damage was found.

Executive summary:

Section	Test Method/Requirement	Result
1	Scope	-
2	Definitions	-
3	General	-
4 Stability Tests		-
4.1 Purpose of Tests		-





4.2 Stability with	Test Setup	NA
Extendible	a) Determine the two extendible elements that, when loaded and	
Elements Open	opened, provide the least stable condition. (This may require evaluation of	
Test	whether interlocked extendible elements can be opened if they are activated simultaneously). Load these extendible elements with the	
	functional load specified per Table 1. The load shall be configured per	
	Section 3.9. If the unit does not allow two extendible elements to be	
	opened simultaneously, only load the largest capacity extendible element.	
	More than one loading configuration may be required to verify that the	
	least stable condition has been evaluated. b) All remaining extendible elements and desk/table components shall	
	be in the closed position, unlocked, and not loaded.	
	' ' '	
	Test Procedure	
	Gradually open the loaded extendible element(s) to the fullest extension	
	the unit will allow. (Open simultaneously if there are two extendible	
	elements).	
	Acceptance Level	
	The unit shall not tip over. If open extendible elements prevent the unit	
	from tipping over due to contact with the test platform, the unit does not	
	meet the acceptance criteria.	
	<b>Note:</b> The use of devices such as casters on a bottom extendible element	
	is an acceptable method of preventing tipping.	

Section	Test Method/Requirement	Result
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i esis Conducted		
4.3 Stability	Test Procedure	Р
Under Vertical	a) For tables less than or equal to 72 in. in length: Place a 305 mm (12 in.)	
Load Test	diameter disk so that its center is 178 mm (7 in.) from the edge of the	
	top at the least stable location. If the center of the disk is greater than	
	305 mm (12 in.) from a corner of the top, move the disk such that its	
	center is 305 mm (12 in.) from the corner keeping the edges of the disk equidistant from both sides of the top. If, at the least stable position, the	
	top has a depth less than 356 mm (14 in.), center the loading disk	
	across the depth at that position. For tables greater than 72 in. in	
	length: Place two 305 mm (12 in.) diameter disks 36 in. apart (center-to-	
	center) so that their centers are 178 mm (7 in.) from the edge of the top	
	at the least stable location. If the center of a disk is greater than 305	
	mm (12 in.) from a corner of the top, move the disk such that its center	
	is 305 mm (12 in.) from the corner keeping the edges of the disk equidistant from both sides of the top. If, at the least stable position, the	
	top has a depth less than 356 mm (14 in.), center the loading disks	
	across the depth at that position. (See Figures 4b and 4c).	
	b) Place a 57 kg (125 lb.) static load on the disk(s).	
	c) If necessary, repeat steps (a) and (b) to verify the least stable position	
	has been evaluated.	
	Acceptance Level	
	The unit shall not tip over. If one of more extendible elements opens	
	during the test and prevents the unit from tipping over due to contact with	
	the test platform, the unit does not meet the acceptance criteria.	
4.4 Horizontal	Test Procedure	NA
Stability Test for	a) Apply a 11.4 kg (25 lb.) static load through a 203 mm (8 in.) diameter	
Desk/Tables	disk centered 102 mm (4 in.) from the edge of the top of the desk/table	
with Casters	at the least stable location. b) Gradually apply a horizontal force to the top surface, perpendicular to	
	the worst case fulcrum ("tipping line") but not more than 13 mm (0.5 in.)	
	below the top surface directly opposite the load. If the geometry of the	
	top surface does not permit a direct application of the load, the	
	geometry of the top surface may be altered to accommodate the 13	
	mm (0.5 in.) dimension. The load shall be applied perpendicular to the	
	line formed by the caster obstruction(s) in (b), until 44.5 N (10 lbf.) is reached, or the product tilts to 10 degrees minimum, whichever occurs	
	first.	
	11100.	
	Acceptance Level	
	The unit shall not tip over. If an extendible element(s) opens during the	
	test and prevents the unit from tipping over due to contact with the test	
	platform, the unit does not meet the acceptance criteria.	
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Section Test Method/Requirement	Result
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**Tests Conducted** 

4.5 Stability Test for Keyboard / Laptop Tables (with and without casters)	Test Procedure  Apply a 4.5 kg (10 lb.) static load through a 203 mm (8 in.) diameter disk centered 102 mm (4 in.) from the edge of the top of the desk/table at the least stable location. Gradually apply a horizontal force to the top surface, perpendicular to the worst case fulcrum ("tipping line") but not more than 13 mm (0.5 in.) below the top surface directly opposite the load. If the geometry of the top surface does not permit a direct application of the load, the geometry of the top surface may be altered to accommodate the 13 mm (0.5 in.) dimension. (See Fig. 4d). The load shall be applied perpendicular to the line formed by the feet/caster obstruction(s) in (b), until 44.5 N (10 lbf.) is reached, or the product tilts to 10 degrees minimum, whichever occurs first.	NA
	The unit shall not tip over.	
4.6 Force Stability Test for Tall Desk/Table Products	This test applies to any unit that is higher than or can be adjusted to heights greater than 1067 mm (42 in.).  Test Procedure  a) Apply the horizontal forces through the center of a disk that is 203 mm (8 in.) in diameter. If the geometry of the product inhibits the use of the 203 mm (8 in.) disk, apply the force through a smaller diameter disk. If the location for the force is centered on an open area, then move the location of the force to the closest vertical or horizontal location on the unit.  b) Gradually increase the force until 177 N (40 lbf.) is reached, the product tilts to 10 degrees, or the horizontal movement at the point of application is 165 mm (6.5 in.) whichever occurs first (angle measuring device must be accurate to within ± 0.5 degree) at the locations specified in step (c).  c) The forces shall be applied one at a time to the following locations in the order given located 1372 mm (54 in.) from the floor or 102 mm (4 in.) down from the top edge, whichever is lower: location 1: Apply force to front of the product at its left side, location 2: Apply force to back of the product at its left side, location 4: Apply force to back of the product at its left side, location 4: Apply force to back of the product at its right side.	P
	Acceptance Level The unit shall not tip over, and there shall be no loss of serviceability. Assembled desk/table products shall not disengage. If one or more extendible elements opens during the test and prevents the unit from tipping over due to contact with the test platform, the unit does not meet the acceptance criteria.	

Section	Test Method/Requirement	Result
5 Unit Strength Te	st	-

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ests Conducted		
5.2 Concentrated - Functional Load Test	<b>Note:</b> This test does not apply to units with a primary surface greater than 965 mm (38 in.) in height. This test applies to adjustable height tables that can be adjusted to 965 mm (38 in.) or less. This test applies to Benching Systems.	Р
	Test Procedure  a) Apply the specified concentrated load to the primary surface per Table 1 through a 305 mm (12 in.) diameter disk so that its center is 178 mm (7 in.) from the unit's edge at its apparent weakest point.  b) All remaining surfaces and extendible elements shall be loaded according to the distributed functional loads per Table 1. The largest two extendible elements shall be fully opened for the duration of the test. If the unit contains an interlock that will not allow two extendible elements to be opened simultaneously, open the largest capacity extendible element(s).  c) Loads shall be allowed to remain for 60 minutes and then removed.	
	Acceptance Level	
	There shall be no loss of serviceability. Upon completion of the test, the	
ı	extendible member(s) shall meet the pull force requirements of Section 19	
	as tested in 5.2.2.	
5.3 Distributed Functional Load Test	Test Procedure  a) Depending on the desk/table surface classification, apply the specified distributed loads per Table 1. For primary surfaces, loads shall be evenly distributed and centered over a line 203 mm (8 in.) in from the edge along the entire perimeter. For surfaces that are less than 406 mm (16 in.) deep, evenly distribute the load across the surface. The loads may be secured to the surface if necessary to perform this test. b) Loads shall be allowed to remain for 60 minutes. c) Close the extendible elements. d) Without removing any load, perform the Pull Force Test in Section 19.  Acceptance Level There shall be no loss of serviceability. Upon the completion of the test, the extendible member(s) shall meet the pull force requirements of	P
	Section 19 as tested in 5.3.2.	
5.4 Concentrated Proof Load Test	Test Procedure The setup shall be performed per Section 5.2.1 with the appropriate concentrated proof load per Table 1, except for the extendible elements, which shall remain loaded with the distributed functional loads. Loads shall be allowed to remain for 15 minutes and then removed.	Р
	Acceptance Level	
	There shall be no sudden and major change in the structural integrity of	
	the product. Loss of serviceability is acceptable.	

Section Test Method/Requirement Resul
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**Tests Conducted** 

5.5 Distributed	Test Procedure	Р
Proof Load Test	Perform the setup per Section 5.3.1 using the appropriate distributed proof loads per Table 1, except for the extendible elements, which shall remain loaded with the functional loads. Loads shall be allowed to remain for 15 minutes and then removed.	
	Acceptance Level	
	There shall be no sudden and major change in the structural integrity of	
	the product. Loss of serviceability is acceptable.	
5.6 Transaction	Test Procedure	NA
Surface Torsion Load Test	Attach a strap or stranded metallic cable to one edge of the transaction surface at its apparent weakest point. Pass the strap or stranded metallic cable over the top of the transaction surface and allow it to hang vertically below the opposite edge. The strap, cable and/or the weight shall not contact any other surfaces. Attach a 34 kg (75 lb.) weight to the free end of the strap or cable.	
	Acceptance Level	
	There shall be no loss of serviceability.	
5.7 Extendible Element Static Load Tests	<b>NOTE</b> : The functional loading tests for extendible elements are performed as described in Section 5.2 and 5.3 and need not be repeated if they have already been performed.	NA
	Test Procedure Uniformly distribute a proof load per Table 1 in the selected extendible element. Close the extendible element and allow the load to remain for 15 minutes. Open the extendible element, allow the load to remain for 15 minutes, and then remove the load.	
	Acceptance Level	
	There shall be no sudden and major change in the structural integrity of	
	the product. Loss of serviceability is acceptable.	
5.8 Benching Systems - Distributed Functional Load and Stability Test	Apply the distributed functional loads from Table 1 to the primary surface(s). Loads shall be evenly distributed and centered over a line 178 mm (7 in.) in from the edge along the front (working) edge. For surfaces that are less than 406 mm (16 in.) deep, evenly distribute the load across the surface. The loads may be secured to the surface if necessary to perform this test. Loads shall be allowed to remain for 60 minutes	NA
	Acceptance Level	
	There shall be no loss of serviceability. The system shall not tip over.	

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5.9 Benching Systems - Distributed Proof Load Test	Test Procedure  Perform the setup per Section 5.8.1 except the unit shall be secured (to prevent tipping) for the Proof Load Test. Apply the appropriate distributed proof loads per Table 1 to all primary surfaces and functional loads (distributed for surface loadings) to all secondary surfaces and extendible elements. The largest two extendible elements shall be fully opened for the duration of the test. If the unit contains an interlock that will not allow two extendible elements to be opened simultaneously, open the largest capacity extendible element. If necessary, the closed extendible elements may be secured to assure they remain closed throughout the test. Loads shall be allowed to remain for 15 minutes.	NA
	Acceptance Level There shall be no sudden and major change in the structural integrity of the product. Loss of serviceability is acceptable.	
6 Top Load Ease Cycle Test	Test Procedure  The bag of 91 kg (200 lb) shall be raised until the entire weight is off the primary surface and then eased (without impact) onto the primary surface, so that it takes the entire weight without any support from the cycling device. The cycling device shall be set to operate at a rate of 14 ± 6 cycles per minute. Repeat for a total of 10,000 cycles.	Р
	Acceptance Level There shall be no loss of serviceability to the unit. Before and after the cycling test, the extendible elements shall meet the pull force test requirements in Section 19.	

Section	Test Method/Requirement	Result	1
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**Tests Conducted** 

**NOTE**: This test applies to unganged freestanding category I desk or table 7 Desk/Table products which are less than or equal to 1829 mm (72 in.) in length. This Unit Drop Test test does not apply to desk/table units with casters or to keyboard tables. Raise one end of the long axis of the unloaded unit so that the bottom of the base is above the test platform at the height given in the following Table 3 or at the balance point, whichever is lower. The end of the unit being tested shall be released and allowed a free fall to the test platform. Repeat test for the other end of the desk/table unit. Test parameter: Table 3 Drop Height for Desk/Table Units **Unit Weight Drop Height** <45 kg (100 lb.) 180 mm (7.1 in.) 45-90 kg (100-200 lb.) 120 mm (4.7 in.) >90 - 136 kg (200 - 300 lb.) 60 mm (2.4 in.) > 136 kg (300 lb.) n/a **Test** procedure a) Assure all extendible elements and surfaces are unloaded and determine the weight of the unloaded desk/table unit to be tested. b) The unit shall be placed on a test platform and leveled. If the desk/table unit is equipped with glides, extend them to their midpoint but not to exceed 13 mm (0.5 in.) from the fully retracted position. c) Raise one end of the long axis of the unloaded unit so that the bottom of the base is above the test platform at the height given in Table 3 or at the balance point, whichever is lower. d) The end of the unit being tested shall be released and allowed a free fall to the test platform. e) Repeat steps (c) and (d) for the other end of the desk/table unit. f) Perform the pull force test in Section 19. **Acceptance Level** There shall be no loss of serviceability. The extendible elements shall meet the pull force test requirements in Section 19.

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rests Conducted		
8 Leg Strength	Test procedure	Р
Test	Based on the desk or table Category, calculate the Functional Force "A"	
	as follows (not to exceed 445 N):	
	Category I: "A" = 0.5 x (unit weight, kg) x 9.8 + 222 N	
	Category II and III: "A" = 0.5 x (unit weight, kg) x 9.8 + 44 N	
	Calculate the Functional Force "B" as (0.5 x "A").	
	,	
	Calculate the Proof Forces "A" (not to exceed 668 N (150 lbf.)) and "B" as	
	follows:	
	Proof Force "A" = 1.5 x (Functional Force "A").	
	Proof Force "B" = 1.5 x (Functional Force "B").	
	Functional Test Acceptance Level	
	No loss of serviceability shall occur as a result of the application of the	
	functional loads. After application of the functional loads, each type and	
	size extendible element in a leg-attached desk pedestal shall be tested to	
	and meet the pull force requirements of Section 19. For tilt-top tables,	
	release of the top latching mechanism during the test is considered a loss	
	of serviceability.	
	Proof Test Acceptance Levels	
	Application of the proof loads shall cause no sudden and major change in	
	the structural integrity of the product. Loss of serviceability is acceptable.	
9 Separation	Test procedure	NA
Tests for Tall	Place a 136 kg. (300 lb.) load in the center of the primary surface of the	
Desk/Table	desk/table unit to prevent the unit from tipping during the test. The other	
Products	elements in the unit shall not be loaded.	
Tioddots		
	Swing a bag that is 203 mm (8 in.) in diameter, weighing 22 kg (50 lb.)	
	and suspended on a cable, through a horizontal distance of 609 mm (24	
	in.).	
	Impact an unloaded unit once at each of the following locations in the	
	order given without repositioning the impacted element. The impact shall	
	be centered along a line that is 102 mm (4 in.) down from the top edge,	
	but not at a height greater than 1321 mm (52 in.). If the impact location is centered on an open area (e.g. open book shelf), move the impact	
	horizontally to the closest impactable location on the unit.	
	location 1: Impact front of product at its left side,	
	location 2: Impact front of product at its right side,	
	location 3: Impact back of product at its left side,	
	location 4: Impact back of product at its right side,	
	location 5: Impact center of product's left side, location	
	6: Impact center of product's right side.	
	Acceptance Level	
	The attached or stackable units shall not become totally separated (fall	
	off) from the base unit as the result of the impact sequence given. Loss of	
	serviceability is acceptable. Cracked or broken glass is not acceptable.	





**Tests Conducted** 

Section	Test Method/Requirement			Result
10 Extendible Ele	ement Cycle Test			-
10.2 Cycle Test for Extendible Elements Deeper Than Wide	Test procedure The extendible element being tested shall be uniformly loaded to the functional load per Table 1. Load shall be configured per Section 3.9. The cycling device shall be operated at a rate of 12 ± 4 cycles per minute. The extendible element shall be subjected to 50,000 cycles  Acceptance Level There shall be no loss of serviceability. Before and after the cycle test, the extendible element(s) shall meet the pull force requirements of Section 19. If applicable, after the cycle test the extendible elements shall meet the interlock test requirements of Section 13.		e test, the Section 19.	NA
10.3 Cycle Test for Extendible Elements Wider Than Deep	Test procedure Extendible element being test load per Table 1.	ted shall be uniformly loaded to the  Table 4  Ile Elements Wider Than Deep  Cycles per Location 50,000 cycles at center of pull 10,000 cycles at center of pull 10,000 cycles at Right Hand position (see test setup) 10,000 cycles at Left Hand position (see test setup)  25,000 cycles at center of Right Hand pull 25,000 cycles at center of Left Hand pull	functional	NA
10.4 Cycle Test for Low Height Drawers	Acceptance Level There shall be no loss of serviceability. Before and after the cycle test, the extendible element(s) shall meet the pull force requirements of Section 19. If applicable, after the cycle test the extendible elements shall meet the interlock test requirements of Section 13.  Test procedure Low height drawers shall be uniformly loaded per Table 1. The cycling device shall be operated at a rate of 12 ± 4 cycles per minute. The low height drawers shall be subjected to 10,000 cycles.  Acceptance Level There shall be no loss of serviceability. Before and after the cycle test, the low height drawer shall meet the pull force requirements of Section 19.		NA	

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11 Extendible	Test was a divis	NIA
Element	Test procedure	NA
Retention	The extendible element being tested shall be uniformly loaded to the	
	functional load per Table 1.	
Impact and	A stranded metallic cable shall be attached to the most rigid point of the	
Durability (Out	vertical centerline of the extendible element. This may be accomplished by means of a clamp or similar device that does not affect the test results.	
Stop) Tests	The opposite end of the cable shall extend horizontally to a pulley and	
	then downward to an attached weight. Open the extendible element 38	
	mm (1.5 in.) and determine the minimum weight that will cause the	
	extendible element to open to full extension. Add 2.3 kg (5 lb.) of weight.	
	This combined weight shall be used to conduct the test. The weight shall	
	contact the restraint device after the extendible element reaches 80% of	
	the extendible element's total extension.	
	Remove the weight restraint. Move the fully extended extendible element	
	51 mm (2 in.) toward the closed position and then release it rapidly,	
	allowing it to impact the out stop. The distance traveled by the weight shall	
	not be restrained. This procedure shall be repeated 15,000 cycles at a	
	rate of 14 ± 6 cycles per minute.	
	Acceptance Level	
	•	
	There shall be no loss of serviceability. Before and after performing the	
	Retention Tests, the extendible element shall meet the pull force	
	requirements of Section 19.	
12 Extendible	Test procedure	NA
Element	The extendible element to be tested shall be loaded to the functional load	
Rebound Test	requirements in Table 1. A force gauge with a spring rate of 1.75 N/mm	
	shall be mounted 51 mm from the face of the extendible element in its fully	
	closed position per Figure 12. The extendible element shall be opened	
	(through the free travel space) against the force gauge to a force of 9.8 N	
	per kg of extendible element load or 178 N, whichever force is less. Release the extendible element allowing the force applied by the force	
	gauge to close the extendible element. Record the at-rest position of the	
	extendible element after rebound.	
	Reset the position of the load to meet the air gap requirements of Section	
	3.9. Repeat steps (c) through (e) for a total of 5 times. Repeat the test as	
	necessary for each extendible element type per Section 3.1.5.	
	Acceptance Level	
	There shall be no loss of serviceability. The rebound position of the	
	extendible element shall not exceed 38 mm (1.5 in.) from its closed	
	position after each of the five closings.	
	·	

Section	Test Method/Requirement	Result
Section	rest method/Requirement	Nesuit





13 Interlock	Test procedure	NA
Strength Test	An extendible element shall be fully extended, and a horizontal force of	
	133 N shall be individually applied to the center of the pull area(s) of the	
	remaining extendible elements, one at a time. Repeat until all possible combinations of extendible elements have been tested. Load extendible	
	elements with the functional load per Table 1. Repeat above steps until all	
	possible combinations of extendible elements have been tested.	
	Acceptance Level	
	There shall be no loss of serviceability to the interlock system. The	
	unopened extendible elements shall not bypass the interlock system.	
14 Lock Tests		-
14.2 Force Test	Test procedure	NA
for Extendible	Close and lock all extendible elements.	
Element Locks	a) A horizontal outward force of 222 N (50 lbf.) shall be applied once at	
	each of the applicable locations indicated in the test setup.	
	b) An outward and upward force (30 degrees from horizontal) of 222 N (50 lbf.) shall be applied once at each of the applicable locations indicated	
	in the test setup.	
	1331 331 <b>3</b>	
	Note: If the extendible element pull design does not allow a user to apply	
	an outward and upward force, step (b) does not apply.	
	c) Repeat steps (a) and (b) for each extendible element.	
	d) Unlock the extendible elements.	
	e) All extendible elements in the unit shall be uniformly loaded with the	
	functional load per Table 1. Any uniform loading configuration in	
	Section 3.9 (Figure 3a -3d) is acceptable.  f) The loaded extendible elements shall be closed and locked.	
	'	
	g) Repeat procedure (a) through (d).	
	Acceptance Level	
	The extendible elements shall remain in the locked position during	
	application of the forces. There shall be no loss of serviceability of the	
	locking mechanism.	
14.3 Force Test	Test procedure	NA
for Door Locks	Close and lock all doors. Apply forces to the center of the pull area of the	
	door.	
	a) Apply a force of 222 N (50 lbf.) in the direction of initial door	
	travel.	
	b) Repeat the test as necessary for each door/lock per Section	
	3.1.5. c) Unlock the door.	
	Acceptance Level	
	The doors shall remain in the locked position during application of the	
	forces. There shall be no loss of serviceability of the locking mechanism.	
	Torocs. There shall be no loss of serviceability of the locking mechanism.	





Section	Test Method/Requirement	Result
14.4 Locking Mechanism Cycle Test	Test procedure  Cycle the locking mechanism through its full range of motion for 5000 cycles. Each cycle shall consist of a complete locking and unlocking of the mechanism. For keyed systems, the key does not need to be removed from the lock mechanism. For keyless systems, the cycle may require two activations of the keypad – one to lock and one to unlock. Set the cycling device to operate at 14 ± 6 cycles per minute. Acceptance Level  There shall be no loss of serviceability of the locking mechanism.	NA
15 Work Surface Vertical Adjustment Test	Test procedure The unit, including any latches or activation mechanisms, shall be cycled for 1000 cycles in each quartile of full travel for a total of 4000 cycles as described below: The cycle rate shall not exceed 6 cycles per minute or the manufacturer's recommended rate.  Note: The test device shall apply the forces necessary to achieve the motion required. The latching and/or activating mechanisms may be cycled concurrently or independently for 4000 cycles.  First Quartile: The unit shall be cycled from the lowest to the 25% position. The center of the loading disk shall be positioned 305 mm (12 in.) in from the left edge of the surface.  Second Quartile: The unit shall be cycled from the 25% to the 50% position. The center of the loading disk shall be positioned 305 mm (12 in.) in from the left edge of the surface.  Third Quartile: The unit shall be cycled from the 50% to the 75% position. The center of the loading disk shall be positioned 305 mm (12 in.) in from the right edge of the surface.  Fourth Quartile: The unit shall be cycled from the 75% up to the highest position. The center of the loading disk shall be positioned 305 mm (12 in.) in from the right edge of the surface.  For tables with crank driven height adjustment mechanisms, the operating force on the handle to adjust the table shall not exceed 50 N (11.2 lbf.) before or after the test.  Acceptance Level There shall be no loss of serviceability to the unit. For surfaces with crank-driven height adjustment mechanisms, the operating force on the handle to adjust the table shall not exceed 50 N (11.2 lbf.) before or after the test.	P

Section	Test Method/Requirement	Result





**Tests Conducted** 

16 Keyboard Support and Input Device Support Adjustment Tests	Test procedure  Apply an evenly distributed 4.5 kg (10 lb.) load across the keyboard support surface. If the device does not have a surface (keyboard attaches directly to the device), a test surface may be added to simulate a keyboard support surface. Apply an evenly distributed 2.3 kg (5 lb.) load across the input device support surface (if it is a separate surface from the keyboard support surface).  The adjustable keyboard support and input device support shall be subjected to 2500 cycles each as follows:  a) Horizontal Motion; within 6 mm (0.25 in.) of the end stops.  b) Vertical Motion; within 6 mm (0.25 in.) of the end stops.  c) Swivel Motion; minimum of 120 degrees of adjustment, or to within 6 mm (0.25 in.) of the end stops over its full range of motion, whichever is less.  d) The cycling device shall be set to operate at rate not to exceed 6 cycles per minute.		attaches  .) load from the e  thin 6 chever is	
	Acceptance Level There shall be no loss of serviceabil	ity.		
Door Tests (Section				
17.2 Strength Test for Vertically Hinged Doors, Bi-fold Doors	Test procedure  Attach the specified load per Table 6 so that it is equally distributed on both sides of the door and its center of gravity acts 100 mm (4 in.) from the edge of the door opposite the hinge.  Table 6 - Door Height vs. Load			
and Vertically	Door height	Load		
Receding Doors	Less than 46 cm (18 in.).	10 kg (22 lb.)		
	46 cm (18 in.) and greater	20 kg (44 lb.)		
	Cycle the door 10 times from a position 45 degrees from fully closed to a position 10 degrees from fully open (but not more than 135 degrees) and return. For bi-fold doors, cycle the door from a position 50 mm (2 in.) from fully closed to a position 50 mm (2 in.) from fully open and return.		es) and	
	Acceptance Level There shall be no loss of serviceabil			
17.3 Hinge Override Test for Vertically Hinged Doors	Test procedure Apply a 60 N (13.5 lbf.) horizontal force perpendicular to the plane of the door on its horizontal centerline 100 mm (4 in.) from the edge farthest from the hinge.  Acceptance Level There shall be no loss of serviceability to the desk/table unit or its components.		e of the arthest	

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# **Tests Conducted**

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17.4 Vertical Receding Doors Strength Test	Test procedure Apply the 80 N (18 lbf.) horizontal force perpendicular to the plane of the door on its horizontal centerline 100 mm (4 in.) from the edge farthest from the hinge, as shown in Figure 17c. Apply the force 10 times. Repeat the test with the force application to the opposite side of the door.	NA
	Acceptance Level There shall be no loss of serviceability to the desk/table unit or its components.	
17.5 Horizontal Receding Doors Strength Test	Test procedure  a) Apply the 80 N (18 lbf.) downward force perpendicular to the plane of the door on its horizontal centerline 25 mm (1 in.) from the edge farthest from the hinge, as shown in Figure 17d. b) Apply the force 10 times.	NA
	Acceptance Level There shall be no loss of serviceability to the desk/table unit or its components.	
17.6 Wear and Fatigue Test for Hinged, Horizontally Sliding, and Tambour Doors	Test procedure  Cycle the door for a total of 20,000 cycles as specified in Table 7. The cyclic rate shall be 12 ± 4 cycles per minute unless the rate is controlled by the door operating mechanisms (pneumatic dampers, etc.). If that is the case, the rate shall not exceed the natural rate established by the movement of the mechanism.  Acceptance Level	NA
	There shall be no loss of serviceability to the desk/table unit or its components.	
17.7 Wear and Fatigue Test for Vertical Receding Doors	<ul> <li>Test procedure</li> <li>a) Prior to performing test procedure, the door shall be tested to and meet the pull force requirements of Section 19.</li> <li>b) Cycle the door for a total of 10,000 cycles.</li> <li>c) The suspensions shall not be cleaned or lubricated during the test.  Note: When necessary to compensate for ball-bearing cage creep ((ballbearing slides only) – see Section 10.2 footnote 1) the door should be reset throughout the test by fully opening and closing the element throughout the test. This interval will depend on a number of variables. The best indicator of the need to reset is increasing pull forces (typically when forces exceed 267 N [60 lbs.]) or decreasing door travel (typically greater than 13 mm [0.5 in.]). The resetting interval shall not be less than 500 cycles.</li> <li>d) Upon completion of the cycles, perform the Pull Force Test in Section 19.</li> <li>e) The cycling device shall be set to operate at 12 ± 4 cycles per minute.</li> </ul> Acceptance Level	NA
	Before and after the cycle test, the door shall meet the pull force	
	requirements of Section 19. The door shall have no loss of serviceability.	

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Section	Test Method/Requirement	Result
17.8 Wear and Fatigue Test for Horizontal Receding Doors	<ul> <li>Test procedure</li> <li>a) Prior to performing test procedure the door shall be tested to and meet the pull force requirements of Section 19. The door may be supported in a horizontal plane during the pull force measurement test.</li> <li>b) The door shall be cycled according to the requirements of Table 7.</li> <li>c) The suspensions shall not be cleaned or lubricated during the test.</li> <li>d) Upon completion of the cycles, perform the Pull Force Test in Section 19.</li> <li>e) The cycling device shall be set to operate at 12 ± 4 cycles per minute.</li> <li>Acceptance Level</li> <li>Before and after the cycle test, the door shall meet the pull force</li> </ul>	NA
17.9 Vertical and Horizontal Receding Door Out Stop Test – Cyclic Impact and Durability	Test Procedure – Cyclic Impact Test (See Figure 17h) The door with stranded metallic cable and hanging weight shall be held 38 mm (1.5 in.) from the stowed position and then released, permitting it to open rapidly (ensuring the weight is restrained according to 17.9.2(e) and impact the out stops. (See Figure 17h). Repeat this procedure for a total of 5 times.  Test Procedure – Cyclic Durability Test (See Figure 17i) a) Remove the load restraint such that the door will travel to full extension. (See Figure 17i). b) A device shall be used to move the door 51 mm (2 in.) toward the stowed position and then to release it rapidly, allowing it to impact the out stop. This procedure shall be repeated 5,000 cycles at a rate of 10 ± 2 cycles per minute. c) Upon completion of the cycles, perform the Pull Force Test in Section 19.  Acceptance Level There shall be no loss of serviceability. Before and after performing the cyclic out stop test, the extendible element shall meet the pull force requirements of Section 19.	NA
17.10 Slam Closed Test for Vertically Hinged and Vertically Receding Doors	Test procedure The door with cable and hanging weight shall be held at 300 mm (12 in.) or 30 degrees from the closed position and then released, permitting the door to close, allowing it to impact the desk/table product case. Repeat this procedure for a total of 10 times without resetting the loading gaps.  Acceptance Level	NA
	There shall be no loss of serviceability.	

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	The door shall be lifted and dropped 200 times at a rate not to exceed 10 cycles per minute.	
Horizontally A	Acceptance Level  There shall be no loss of serviceability to the unit or its components.	

Section	Test Method/Requirement	Result
17.12 Slam Test for Doors Which Free Fall Open or Closed	Test procedure  a) The unit shall be placed on a test platform, leveled, and secured against movement. b) Determine the highest position from which the door will fall (move) freely open/closed throughout its greatest distance. Depending on the door's design, the door may require testing in both its opening and closing conditions.  Allow the door to fall open/close freely. Repeat for a total of 50 cycles in each direction  Acceptance Level  There shall be no loss of serviceability to the desk/table unit or its components.	NA
17.13 Slam Open and Closed Test for Doors which Do Not Free Fall	Test procedure  a) Move the door, lifting the weight so the door will travel 300 mm (11.8 in.) or to the doorstop opposite the one to be impacted, whichever is less. b) Release the door, permitting the door to move rapidly, allowing it to impact the doorstop. c) Repeat steps (a) and (b) for a total of 10 times. d) Repeat Test Setup and Test Procedure steps (a) through (c) to impact the opposite door stop on the same door.  Acceptance Level	NA
	There shall be no loss of serviceability to the desk/table unit or its components.	
17.14 Door Latch Test	<ul> <li>Test procedure</li> <li>a) The unit shall be placed on a test platform, leveled, and secured against movement.</li> <li>b) Attach the door and/or latch to a cycling device.</li> <li>c) Set the cycling device to operate at 12 ± 4 cycles per minute. Operate the latch 20,000 times.</li> </ul>	NA
	Acceptance Level There shall be no loss of serviceability to the door or its latching mechanism.	

Section	Test Method/Requirement	Result

(N)



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18 Durability Test for Desks	Test procedure Cycle the desk/table ur			s over a	NA
and Tables with Casters	platform with and withou	ut obstructions per			
Custors	Unloaded Unit	Cycles over	Cycles over flat	7	
	weight	obstacles	surface	1	
	Less than or equal to 45 kg (100 lbs.)	2500	0	1	
	Greater than 45 kg (100 lbs.)	100	1000		
19 Pull Force	Acceptance Level There shall be no loss of Test procedure	•			NA
Test	Extendible elements ar period of up to 100 cycle the pull force requireme (0 to 0.25 in.) of the closextended/open position from its fully closed post the maximum force.	es if the extendible ent. One cycle is de sed position to 0 to and return. Open	e element does not in efined as travel from of mm (0 to 0.25 in.) the extendible eleme	nitially meet 0 to 6 mm ) of the fully ent or door	
	Acceptance Level				
	The applied force shall	not exceed 50 N (	11.2 lbf.).		
20 Tilting Top Table Cycle Test	Test procedure  Move the table top from horizontal position) to its vertical) and then return cycling device is used, t in.) of the edge.  The cycle rate shall not	s fully stowed posit to its in-use posit then center the de	tion (typically vertica on for 2,500 cycles. vice on the top withir	l or near Note: If a	NA
	Acceptance Level				
	There shall be no loss of move throughout its ran	•	d the table top shall I	be able to	

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21 Tilting Top Table – Latch Strength Test	Test procedure  Apply an upward force of 222 N (50 lbs.) 25 mm (1 in.) inward and at the center of the edge of the table top in the direction that would typically move the table top into its stowed position. Move the tabletop to its stowed (vertical or most upright) position. With lock/latch engaged, apply a horizontal force of 133 N (30 lbs.) at the center of the edge of the table top in the direction that would typically move the table top into its in-use position.	NA
	Acceptance Level The lock/latch shall retain the top in its test position throughout the application of the test force(s). There shall be no loss of serviceability to the unit.	

Section	Test Method/Requirement	Result
22 Monitor Arm Strength Test	<ul> <li>Test procedure</li> <li>a) The monitor arm shall be attached to the desk/table unit (or test fixture) in accordance with the manufacturer's instructions.</li> <li>b) Extend the monitor arm to its most horizontally extended (worst case) position.</li> <li>c) A test weight simulating the weight of a monitor shall be placed on the monitor arm in accordance with the manufacturer's maximum load rating. The simulated weight shall not exceed 76 mm (3 in.) in thickness. If no manufacturer's load rating is provided, apply a test weight of 20 kg (44 lbs.). The load may be attached to the monitor arm with a test fixture that simulates an actual monitor, or may be applied by means of a weight suspended from the monitor attachment mechanism.</li> <li>d) Apply the test weight for 60 minutes.</li> </ul>	NA
	Acceptance Level There shall be no loss of serviceability.	
23 Monitor Arm Cycle Test	Test procedure  Move the monitor arm through its entire range of motion(s) for 2,500 cycles. A cycle shall consist of the 90-95% of the adjustment range including back to forth, up to down, side to side, or whatever the range may entail. A cycle is rotation or movement in one direction from one end of the range to the other. Rotation or movement in the opposite direction is another cycle.  If clamping or clutch-type mechanisms have been loosened prior to testing, reapply (tighten) them after cycling. (Due to product variations, no cycle rate is given and is determined by the manufacturer. Consider a suggested cycle rate not to exceed 6 cycles per minute.)  There shall be no loss of serviceability. Clamping or clutch mechanisms shall remain functional. Tensioning mechanisms must be capable of being reset to hold the monitor in its pretest position.	NA
	Acceptance Level There shall be no loss of serviceability. Clamping or clutch mechanisms shall remain functional. Tensioning mechanisms must be capable of being reset to hold the monitor in its pretest position.	

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Section	Test Method/Requirement	Result
24 Monitor Arm Adapter Dislodgement Test	Test procedure  Apply a horizontal force of 40 N (9 lbf.) in three directions. Apply each force independently in the following locations:  a) A forward (away from the user) direction at a location that is 25 mm (1 in.) inwards and downwards from the top corner of the mock up monitor/test fixture (See Figure 24).  b) A rearward location (from behind the monitor in a direction towards the user) at a location that is 25 mm (1 in.) inwards and downwards from the top corner of the mock up monitor/test fixture.  c) To the either side of the monitor at a location that is 25 mm (1 in.) downwards from the top corner of the mock up monitor/test fixture.  Acceptance Level  There shall be no loss of serviceability.	Ρ

Abbreviation: P = Pass; NA = Not Applicable

Note:

Category I: surface area greater than 0.46 mDesks or tables with surfaces greater than 610 mm (24 inches) in height and have a total work 2 (5 ft.2).

Category II: Desks or tables with surfaces which are always less than or equal to 610 mm (24 inches) in height.

**Category III:** surface area less than or equal to 0.46 mDesks or tables with surfaces greater than 610 mm (24 inches) in height and have a total work 2 (5 ft2)

\* End of report

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