Tables and desks:
ANSI BIFMA X5.5:2021 replaces the 2014 version
Maurizio Marussi

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The American ANSI BIFMA X5.5:2021 standard, which defines criteria for evaluating the safety, durability, and structural strength of tables and desks, replaced the 2014 version by introducing some **substantial changes,** including:

- the **scope**, previously office and school only, **has been expanded** to include use in commercial, bar and restaurant environments;
- for the **Stability test Clause. 4**, a load of 34 kg with a 203 mm diameter pad tangent to the edge of the top was added to the vertical load of 57 kg with a 305 mm diameter pad at 25 mm from the edge (Fig.1);
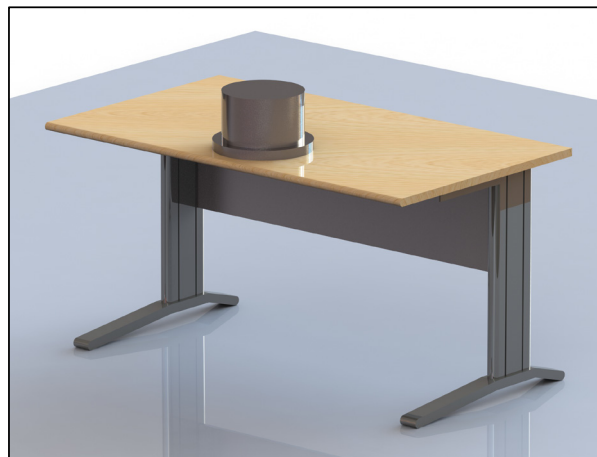

Fig.1: Stability test Clause. 4

- for the **Top load ease cycle test Clause. 6**, which involves the application of a mass consisting of a 406 mm diameter bag weighing 91 kg for 10,000 cycles (Fig.2), a requirement for height-adjustable tables was added in the evaluation of results, allowing a gradual lowering of the table during the test, without it being considered negative;
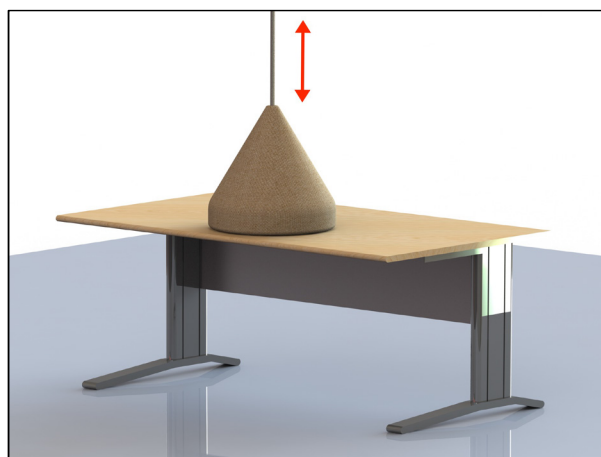

Fig.2: Top load ease cycle test Clause. 6

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- for the **Leg strenght test Clause. 8**, where the table is turned upside down and horizontal forces are applied (Fig.3) to be calculated as indicated in Table 1, tables weighing more than 135.1 kg and tables on which, due to their type (e.g. folding), it is not possible to apply forces on the legs have been excluded from the method. For these types of tables a new method has been added: Leg resistance – alternating Section 8.3. (see the next point);
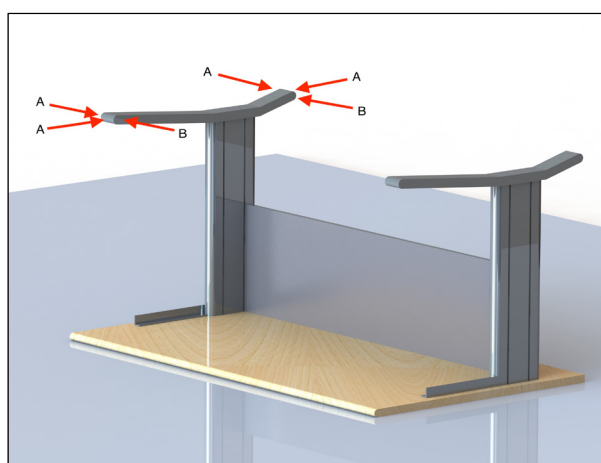

Fig 3: Leg strenght test Clause. 8

	Force A Functional	Force B Functional	Force A Proof	Force B Proof
Type 1	0,5 x table weight x 9,8 + 222 (N)	0,5 x A	A Functional x 1,5	B Functional x 1,5
Type 2 e 3	0,5 x table weight x 9,8 + 44 (N)	0,5 x A	A Functional x 1,5	B Functional x 1,5

Table 1

Example of calculation for a category 1 table weighing 20 kg:

	Force A Functional	Force B Functional	Force A Proof	Force B Proof
Type 1	320 N	160 N	480 N	240 N

- **Leg Strength Test – Alternate Clause. 8.3**: in this new method, the table is left in the use position (Fig. 4), the legs are locked by stops and horizontal longitudinal and transverse forces are applied on the table top (Tab. 2), getting closer to the methods normally used in European standards;

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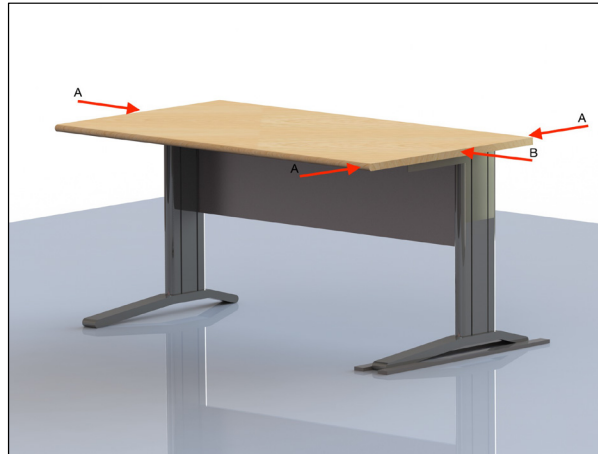
Fig.4 : Leg Strength Test – Alternate Clause. 8.3

Force A Functional	Force B Functional	Force A Proof	Force B Proof
445 N	222 N	668 N	334 N

Table 2

- For the **Work surface vertical adjustment test Clause 15**, the method for evaluating electrically adjustable desks has been completely modified, both in terms of the magnitude of the load and the sequence of cycles.
  The load to be applied on the top is 7.14 kg per meter of the perimeter of the top (but not more than 34 kg or less than 15.9 kg), which is applied as follows:
  - two thirds distributed on the back of the top at 100 mm from the edge
  - one third on a front corner at 200 mm from the edges (Fig.5).
  The total cycles to be made are 5,010 distributed as follows:
    – 2,500 for 90% of the stroke, without reaching the lower and upper end stops;
    – 2,500 cycles for 25% of the stroke, to be made in the upper part of the adjustment, without reaching the end stops;
    – 10 cycles for 100% of the stroke, removing the load from the desk.

  Example of load to be applied on a desk with 1800 x 800mm top:
  Perimeter: 5.2m
  Load: 5,2 x 7,14= 37,1 kg (Max 34 kg) = 34 kg
  Load to be applied to the back of the top (2/3 of total load): 22.7 kg
  Load to be applied on the front corner (1/3 of the total load): 11.3 kg

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Fig.5: Work surface vertical adjustment test Clause 15

- **Unattached table top retention test Clause 25**: this new point of the standard has been added to evaluate tables that have the top not fixed to the structure; recalling the method "Leg resistance – alternating Par. 8.3" previously illustrated and applying the forces as indicated in Fig.4 – force requirement equal to 111 N – the top must not move (Fig.6) .

111 N

Fig.6: Unattached table top retention test Clause 25

Test sequence and number of samples to be tested

The ANSI BIFMA X5.5:2021 standard does not require, as in other European table standards, that all tests are performed on a single sample and following a sequence.

For this reason, several identical samples can be delivered for testing and the sequence to be followed will be decided by the laboratory or in agreement with the customer.

All positive tests for samples delivered together to the laboratory will be included in a single test report. Samples will be numbered (1,2,3…) and the numbering will be inserted inside the single tests, also mentioning the total number of samples delivered.

In case of a negative result of a test, in agreement with the customer this will be repeated on one of the new samples available.

Negative tests repeated on samples delivered to the laboratory at different times will have different test reports.

For info:

Maurizio Marussi

+39 0432 747225

marussi@catas.com