NSF International Standard /
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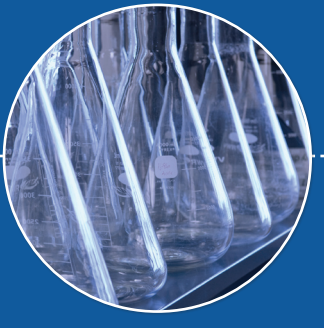
NSF/ANSI 49 - 2019

Biosafety Cabinetry: Design, Construction, Performance, and Field Certification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NSF International Standard /
American National Standard
for Biosafety Cabinery –

Biosafety Cabinetry: Design, Construction, Performance, and Field Certification

Standard Developer
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The NSF Joint Committee on Biosafety Cabinetry

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Contents

Foreword[2]

The purpose of this Standard is to establish minimum requirements for materials, design, construction, and performance of Biosafety Cabinetry that are designed to protect personnel, product, and the environment. This Standard details requirements for performance testing as well as field certification testing.

This edition includes the following revisions:

Issue 54

This revision affirms new and updated language in Annex N-5 (formerly Annex F) concerning the use of the Secondary method for measuring airflow.

Issue 82

This revision affirms new language in Annex I-1 (formerly Annex E) regarding the term *percent recirculation*.

Issue 92

This revision affirms new and updated language in Section 3 and Annex N-5 (formerly Annex F) regarding canopy field testing.

Issue 120

This revision affirms new language in Section 3 regarding the addition of the newly proposed term *plenum*.

Issue 122

This revision affirms new and revised language in Annex N-5 (formerly Annex F) regarding the Certification Label.

Issue 127

This revision affirms revised language regarding the use of the term *NOTE*.

Issue 130

This revision affirms revised language regarding the definition of the term *work area*.

Issue 133

This revision affirms revised language in Section 5 regarding the data plate.

Issue 136

This revision affirms revised language in Annex N-1 (formerly Annex A) and Annex N-5 (formerly Annex F) regarding the sash seal smoke test.

Issue 138

This revision affirms revised language regarding the range of measurement for vibration frequency.

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Issue 139

This revision affirms revised language in Annex I-1 (formerly Annex E).

Issue 140

This revision affirms revised language in Annex N-1 (formerly Annex A) regarding accuracy requirements for the manometer used for the pressure decay and motor blower performance tests.

Issue 146

This revision addresses inconsistencies of incubation times and temperatures during the various biological tests in Annex N-1.

Issue 147

This revision affirms revised language in Annex N-1 (formerly Annex A) regarding filter porosity for filtering impinger water.

Issue 148

This revision affirms revised language in Annex N-1 (formerly Annex A) regarding the confirmation requirements for the Cross Center test.

Issue 149

This revision affirms revised language in Section 2 regarding Normative References.

The Interpretations Annex contains responses to interpretation requests. The responses will be published in each version of the Standard until such time that the interpretation response is no longer applicable.

This revision also includes an editorial update to the names of the Annexes within. The Annexes are being changed from alpha characters to numeric, preceded by a 'Normative' or 'Informative'. The Annexes have also been reordered so the Normative Annexes appear first, followed by the Informative Annexes. The table below shows the previous name of the Annex with the corresponding new name of the Annex:

Annexes	
Previously known as:	**Now known as:**
Annex A	Normative Annex 1 (N-1)
Annex B	Normative Annex 2 (N-2)
Annex C	Normative Annex 3 (N-3)
Annex D	Normative Annex 4 (N-4)
Annex E	Informative Annex 1 (I-1)
Annex F	Normative Annex 5 (N-5)
Annex G	Informative Annex 2 (I-2)
Annex H	Informative Annex 3 (I-3)
Annex I	Informative Annex 4 (I-4)
Annex J	Informative Annex 5 (I-5)
Annex K	Informative Annex 6 (I-6)

This Standard was developed by the NSF Joint Committee on Biosafety Cabinetry using the consensus process described by the American National Standards Institute.

This Standard and the accompanying text are intended for voluntary use by certifying organizations, regulatory agencies, and/or manufacturers as a basis of providing assurances that adequate health protection exists for covered products.

Suggestions for improvement of this Standard are welcome. This Standard is maintained on a Continuous Maintenance schedule and can be opened for comment at any time. Comments should be sent to: Chair, Joint Committee on Biosafety Cabinetry at standards@nsf.org, or c/o NSF International, Standards Department, PO Box 130140, Ann Arbor, Michigan 48113-0140, USA.

NSF/ANSI Standard
for Biosafety Cabinetry —

Biosafety Cabinetry: Design, Construction, Performance, and Field Certification

1 General

1.1 Scope

This Standard applies to Class II (laminar flow) biosafety cabinetry designed to minimize hazards inherent in work with agents assigned to Biosafety Levels 1, 2, 3, or 4. It also defines the tests that shall be passed by such cabinetry to meet this Standard. This Standard includes basic requirements for the design, construction, and performance of biosafety cabinets (BSCs) that are intended to provide personnel, product, and environmental protection; reliable operation; durability and structural stability; cleanability; limitations on noise level; illumination; vibration; and motor / blower performance.

1.2 Minimum requirements

Cabinets qualifying under this Standard shall have passed all of the designated tests. Units with component parts covered under existing NSF Standards or Criteria shall conform to those applicable requirements.

1.3 Variations in design and construction

Cabinetry varying in design, construction, or installation of accessory equipment may qualify under this Standard, if appropriate tests and investigations indicate that the equipment is durable and reliable, can be cleaned and decontaminated, and performs in conformance to this Standard. Such equipment shall meet the requirements for materials and finishes in this Standard.

Major modifications require appropriate tests for conformance. Major modifications include, but are not limited to any of the following changes to the blower / motor(s): location, capacity, quantity, or automatic airflow adjustment; size, or design, or both, of air plenums; position of high efficiency particulate air / ultra-low penetrating air (HEPA/ULPA) filters; position or redesign of work surface; work area intake and exhaust air grilles; window placement or design; access opening size; location and size of exhaust port; the visibility or audibility of the safety signaling; and built-in accessory equipment (centrifuges, ultraviolet (UV) lighting, supports for intravenous drug container, arm rests, etc.). Major modifications also include changes affecting the safe use of the cabinet including the ability to see, hear, and understand the required alarms. Relocation of utility service equipment (electrical outlets, petcocks, etc.), the visual appearance of the cabinet, or user interface(s), are not considered a major modification if other provisions of this Standard are not compromised.