



Joint Committee on Biosafety Cabinetry

July 9, 2024

Proposed revision to NSF/ANSI: 49 – Biosafety Cabinetry: Design, Construction, Performance and Field Certification (49i173BBR1)

Revision 1 of NSF/ANSI 49, issue 173AA is being forwarded to the Joint Committee on Biosafety Cabinetry for consideration. Please review the proposal and **submit your ballot by July 30, 2024** via the [NSF Online Workspace](#).

Please review all ballot materials. When adding comments, please include the section number for your comment and add all comments under one comment number whenever possible. If additional space is needed, you may upload a MS Word or .PDF version of your comments directly to the NSF Online Workspace.

Purpose

The purpose of this ballot is to affirm revised and new language related to the many design and construction requirements throughout Standard 49.

Background

Issue paper **BSC-2022-03 – Design and Construction Requirements** highlighted that the design and construction requirements in standard 49 haven't received much evaluation in many years. The issue proponent suggested the establishment of task group (TG) to discuss updating the various subsections. This issue was presented to the JC during the 2022 Face-to-Face meeting at which time a TG was motioned into existence. Since that time, the TG has met four times and proposed a multitude of updated subsections.

These proposals are extensive in number and the TG discussed breaking them up into several subsection ballots to make the work more digestible. During the most recent meeting (April 22, 2024) the issue proponent presented 19 different subsections and the group agreed to send each to individual straw ballot first with the TG. The straw ballots are now being recombined into 4 larger JC approval ballots.

This JC approval ballot is a combination of 5 straw ballots that all received unanimous affirmative approval by the Task Group and is presented here for your consideration.

If you have any questions about the technical content of the ballot, you may contact me in care of:

A handwritten signature in black ink, appearing to read "R. Powitz", is positioned above the contact information.

Robert W. Powitz, PhD, MPH, RS, DLAAS
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[Note – the recommended changes to the standard which include the current text of the relevant section(s) indicate deletions by use of ~~strikeout~~ and additions by **grey highlighting**. Rationale Statements are in *red italics* and only used to add clarity; these statements will NOT be in the finished publication.]

NSF/ANSI International Standard for Biosafety Cabinetry —

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

***Rationale:** Language regarding the many design and construction requirements in Standard 49 have not been evaluated for many years. These proposed revisions intend to do so.*

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5 Design and Construction

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5.10 Fastening methods

5.10.1 Exposed fastenings

Exposed ~~screw threads, projecting screws, and studs~~ shall not be used on interior work surfaces. They shall only be used on exposed interior and other interior surfaces when other fastening methods are impractical. ~~All metal fasteners and studs subject to maintenance shall not be subject to excessive overspray.~~

5.10.2 Exterior fastenings

Fasteners for exterior removable panels that are gasketed and subject to pressure shall be studs with solid acorn nuts, or equivalent, so that the gasket is sealed. Fasteners for other removable panels may be low profile type fasteners (truss, round counter sunk, flat counter sunk head [see Figure 4]), or studs with solid acorn nuts. ~~All metal fasteners and studs subject to maintenance shall not be subject to excessive overspray.~~

5.10.3 Interior fastenings

In areas subject to cleaning, interior fastenings and joinings shall be fabricated to minimize projections, ledges, and recesses. ~~All metal fasteners and studs subject to maintenance shall not be subject to excessive overspray.~~

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5.11 Welds

Welds shall meet the smoothness requirements of the applicable surface.

5.12 Solder

Solder shall only be used to seal structurally sound seams or as a fillet material (see Section 5.7.1.3).

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5.13 Removable panels

All maintenance panels to access the blower / motor assemblies and filters shall be front access. Panels shall remain in place when sealing fasteners are removed. All cabinets shall be provided with a blower access panel. Cabinets fabricated without an access panel large enough to allow removal of the blower motor assembly as one piece shall be prohibited. The design and construction of removable panels shall minimize projections and openings.

Removable panels for access into contaminated areas shall be designed so that upon reassembly, a seal is provided without application of additional sealant as required in Section 5.23 6-2.

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5.16 Legs and feet

Legs and feet shall be sufficiently rigid to provide support with a minimum of cross bracing. They shall be fastened to the cabinet and shaped at floor or bench top contact to minimize the accumulation of splash and spillage. Legs and feet shall be of simple design, with no exposed threads. The minimum contact diameter of the foot shall be 0.75 inch (19 mm). The foot shall be fabricated with a smooth material to prevent floor damage.

Rationale: Language is ambiguous and unnecessary. The TG proposes allowing exposed threads. Although exposed threads on the feet may look sloppy, they don't create a problem with function. The original intent was to avoid feet that are difficult to clean. If that is important in the long run, new language requirement will be needed. The current problem is that a new foot design has become very popular and the manufacturers using it are doing things to meet this requirement that make this design function less well.

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5.17 Reinforcing and framing

Reinforcing and framing members, not totally enclosed or within walls, shall be easily cleanable. Reinforcing and framing members shall not provide harborage for vermin. The ends of all hollow sections, not subject to gas decontamination, shall be closed. Reinforcing and framing members subject to splash, or spillage, or both, shall be sealed. Horizontal angle reinforcing and gussets shall not be placed where soil may accumulate. Where angles are used horizontally, they shall have one leg turned down wherever the equipment permits or be formed integrally with the sides. All vertical channel sections shall be completely closed or open.

Rationale: These requirements make sense for food equipment but are overly restrictive for biosafety cabinets. In a separate ballot, a new definition for "easily cleanable" is proposed.