Joint Committee on Food Equipment Meeting

August 21 & 22, 2019
1:00 – 5:00pm & 8:00 - 11:30 am (EDT)

Vaughn Room
NSF Headquarters
789 N. Dixboro Road
Ann Arbor, MI 48105

To join via Computer:	**To join via phone :**
https://bluejeans.com/6856273553	1) Dial: +1.408.740.7256 (United States) +1.888.240.2560 (US Toll Free) +1.408.317.9253 (Alternate number) 2) Enter Conference ID : 6856273553 followed by #

NSF Food Equipment Joint Committee Meeting
21 August 2019 – Vaughn Room

Rules of Order

Robert's Rules of Order (11th Edition):

Report → Motion → Motion 2nd →

Discussion → Vote

An *Issue Paper* is used to initiate an action such as revisions to a food equipment standard. Specific changes to the standard may be included.

An *Information Paper* is used to communicate information, research or other news that would be of interest to the Food Equipment Joint Committee. An Information Paper is a non-action initiating document.

TAB A

- Agenda
- 2018 Meeting Summary
- Membership
- Celebrating 75 Years

Distributed on August 12, 2018

Joint Committee on Food Equipment Meeting
Wednesday & Thursday, August 21 & 22, 2019

1:00 – 5:00pm & 8:00 - 11:30 am (EDT)

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Supplemental pre-meetings			
Aug 21 9:00 - 10:30	Task Group Chair Meeting	Snyder Room	Bluejeans
Aug 21 10:30 - 12:00	Public Agency Forum	Innovation Room	Bluejeans
Lunch 12:00 - 1:00			

Joint Committee Meeting				
Time	**Tab**	**Item**	**Speaker**	**Action/Info**
Aug 21 1:00 - 1:15	Tab A	Welcome	M.Perez	Info
		Antitrust Statement/Roll Call - Sign in Sheet	A.Rose	Info/Action
		Rules of order and meeting conduct	M.Perez	Info
		Review and acceptance of Agenda	M.Perez	Info/Action
		Review and acceptance of August 22-23, 2018 Meeting Summary	M.Perez	Info/Action
		Video Training Resources on the NOW	A.Rose	Info
		JC Membership Roster - Member Recognition, Balance Discussion, Recognition to members voting on every ballot over the previous year, New Member Application	M.Perez	Info
		Celebrating 75 years	T.Chestnut	Info
Existing Business and Task Group Updates				
1:15 - 1:20	Tab C	2018 Action Items, and List of Issue Papers Received and Assigned since Previous Meeting	M.Perez	Info
Task Group Updates				
1:20 - 1:50	Tab D1	Standard 2 - Food Equipment	J.Brady	Info
		Food Shields	P.Matus	Info
		Figures and Diagrams	J.Scanlon	Info

Distributed on August 12, 2018

1:50 - 2:05	Tab D2	Standard 3 - Commercial Warewashing Equipment	J.Hipp	Info
2:05 - 2:20	Tab D3	Standard 4 - Commercial Cooking, Rethermalization and Powered Hot Food Holding, and Transport Equipment	J.Brania	Info
2:20 - 2:40	Tab D4	Standard 7 - Commercial refrigerators and freezers	T.Gagliardi	Info
2:40 - 3:00	Tab D5	Standard 12 - Automatic Ice Making Equipment	B.Glynn	Info
Break 3:00 - 3:15				
3:15 - 4:00		Presentation - How the CDC Vessel Sanitation Program, drives food equipment requirements in a marine, cruise ship, environment	L.Rodriguez	Info
4:00 - 4:20	Tab D6	Standard 25 - Vending machines for food and beverages	D.Negandhi	Info
4:20 - 4:40	Tab D7	Standard 51 - Food equipment materials	B.Sickles	Info
4:40 - 4:45	Tab D8	TG reports that didn't hold any teleconferences, no action		Info
Reception at The Old German 7:30 pm				
Aug 22 8:00 - 8:45		Presentation - NAFEM	C.Souhrada	Info
New Business				
8:45 - 9:40	Tab F1	Issue Paper FE-2019-05 - Section 5.4 Cover Requirements	M.Perez	Info/Action
	Tab F2	Issue Paper FE-2019-06 - Slotted Fasteners in Marine Equipment	L.Rodriguez	Info/Action
	Tab F3	Issue Paper FE-2019-08 - NOTE in 5.1.4	R.Bergamini	Info/Action
	Tab F4	Issue Paper FE-2019-09 - Definition for Potentially Hazardous Foods	D.Melaragno	Info/Action
Break 9:40 - 9:55				
9:55 - 11:15	Tab F5	Issue Paper FE-2019-10 - Definition for Sheets	D.Melaragno	Info/Action

	Tab F6	Issue Paper FE-2019-11 - Casters	J.Hall	Info/Action
	Tab F7	Information Paper - Surface Cleanability	D.Negandhi	Info
	Tab F8	Information Paper - Plastic Cutting Boards	J.Veden	Info
11:15 - 11:30	Tab H	Other New Business		
	Tab I	Meeting Wrap-Up and Adjournment	M.Perez	Info/Action

Joint Committee on Food Equipment
Meeting Summary
NSF Headquarters, Ann Arbor Michigan
August 22 – 23, 2018

Opening Remarks

M.Perez welcomed the Joint Committee (JC) members and observers and thanked them for their contributions. Following opening remarks, A.Rose conducted roll call. Once the attendance was recorded A.Rose read the NSF Antitrust Statement and turned the meeting over to the Chair. Twenty-seven of the 33 voting members (82%) were present representing a quorum. Once quorum was established, the meeting was called to order at 1:00 pm.

M.Perez reviewed Robert's Rules of Order and Meeting Conduct emphasizing group participation and allowing everyone to be heard. Only voting members may make a motion, second a motion and vote on a motion. However all attendees may participate in a discussion. There were no questions at the end of his discussion.

Tab A – Agenda, 2017 Meeting summary and Review of Membership

Review of August 23-24, 2017 Meeting Summary

M.Perez reviewed the August 23-24, 2017 Meeting Summary and opened the floor for suggested changes. There were none so he called for a motion:

Motion, J.Scanlon:	To accept the August 23-24, 2017 Meeting Summary
Second:	M.Nashan
Further discussion:	None
Vote:	Twenty-seven in favor, Zero Opposed, Zero Abstain
Motion:	Carries

Review of Agenda

M.Perez reviewed the agenda for this meeting and opened the floor for suggested changes. There were none so Michael called for a motion:

Motion by T.Johnson:	To accept the agenda for this year's meeting
Second:	R.Brandt
Further discussion:	J.Brady indicated he and B.Glynn have a pending new Issue Paper, which has yet to be submitted. Time permitting, he'd like to submit this issue document for consideration. B.Glynn indicated the issue paper will be sent to A.Rose today.
Vote:	Twenty-seven in favor, Zero opposed, Zero Abstain
Motion:	Carries

Review of Membership

M.Perez acknowledged the new JCFE members since the previous meeting, S.Dye (PUBLIC HEALTH/REGULATORY) and T.Webb (USER). He then highlighted the increased emphasis placed on member participation, detailing the improved voting record, and the fact there were 17 members with a perfect 100% participation with respect to the 15 approval ballots issues since the previous meeting.

He added that the list of these individuals published in the meeting packet was missing 2 members, S.Burton-Zick and S.Schaefer, and we wants the record to show they too had perfect voting records.

He further acknowledged that the new members S.Dye and T.Webb also have perfect voting records although they were not eligible for the entire 15 ballots since the previous meeting.

M.Perez asked if there were any further comments; there were none

Tab B – JC 101

M.Perez indicated the first presentation was entitled JC 101, and introduced J.Evans, the Director of NSF Standards and presenter of the material. J.Evans thanked the Chair and members, and conducted the presentation:

Stds process review Food JC 8-22-18.pptx

Upon completion, M.Perez thanked J.Evans and opened the floor for comments and questions.

Bill asked if the presentation will be made available, and J.Evans acknowledged it would be. Sara asked for a bit more detail about what defines an observer on the JC, and J.Evans explained the differences, emphasizing that an observer can participating in nearly everything the same way, but does not have the privilege or responsibility of voting on approval ballots. She further explained that observers on the JC can be voting members on Task Groups (TG), and are allowed to express opinions in the same open forum.

M.Perez asked if there were any further comments; there were none

Tab C – 2017 Action Items, and List of Issue Papers Received and Assigned since previous meeting

M Perez reported that 7 of the 8 action items from the 2017 JCFE meeting are complete:

2017 JCFE MEETING ACTION ITEMS:

Standard 2
The JC recommends issue paper FE-2017-12 – Update regarding Dinnerware be sent to Standard 2 TG, and put the withdrawal of Standard 36 on hold until FE-2017-12 is resolved.

Complete per TG meetings on 2017-10-03 & 2018-01-23, and J.Brady 2018-02-05 email

Standard 4
The JC recommends the Standard 4 TG Chair reach out to the Issue Proponent for clarification (FE2016-16 – Velocity Location Measurement).

Complete 2018-02-12

Standard 37
The JC recommends item one on Issue Paper FE-2017-07 – Location of Definitions be accepted, and the Chair will exercise prerogative and send this directly to approval ballot once the documents are prepared.

Issue not urgent and will be addressed during the 5 year publication cycle

Standard 6
The JC recommends the Issue Proponent rewrite FE-2017-09 as discussed during this meeting and send revised language to the Dispensing Equipment TG for discussion

Complete; FE-2017-14 received 2017-08-28

Standard 8
The JC recommends to send proposed language for Issue Paper FE-2017-11 directly to JC Approval Ballot

Complete; published in July 2018

Standard 7
The JC recommends to send proposed language for Issue Paper FE-2017-13 to the Standard 7 TG for discussion

Sent to TG, introduced during October 17 Teleconference; Discussion underway

Standard 3
The JC recommends to send Information Paper regarding Cutlery Cleaning to the Standard 3 TG for discussion

Complete; sent to TG on 2017-08-24

New Information Paper – Marking on Solid Surfacing
The JC recommends that NSF consider modifying the certification policy to include this type of information.

Possible modification of certification policy pending the adoption of new language for solid surfacing in Standards 51 and 170

M.Perez then presented the list of issue papers received & assigned since August 2017, as well as a list of Standards published since that same time.

Issue Papers Received and Assigned Since 2017 JCFE Meeting

Issue Document/Title	TG Assigned
FE-2017-14 – Increase Lockout Time	Standard 6
FE-2017-15 – Section 5.34.4.4, Heads of Fasteners	Standard 8
FE-2017-16 – Sealant Cross Reference Fix	Standard 2
FE-2018-01 – Clarity to Section 5.2.1.3	Standard 2
FE-2018-02 – Backflow Prevention Boilerplate	Standard 2
FE-2018-03 – Organic Coatings, Heated Splash Zones A	Standard 51
FE-2018-04 – Organic Coatings, Heated Splash Zones B	Standard 51
FE-2018-06 – Backflow Prevention Boilerplate	Standard 4

Yellow Highlights indicate balloted, completed and published language

Standards Published Since 2017 JCFE Meeting

2 – Food Equipment
8 – Commercial Powered Food Preparation Equipment
51 – Food Equipment Materials
170 – Glossary of Food Equipment Terminology

36 – Dinnerware – Withdrawn shortly after language published in Standard 2. Current Standard 36 Certifications valid through 2018

M.Perez asked if there were any further comments; there were none

Tab D – Task Group Updates

Tab D1 – Standard 2 (report included in the 2018 meeting packet)
J.Brady is the TG chair, confirming the TG met 3 times since the 2017 JC F2F (face-to-face meeting). He detailed the 4 issues discussed indicating all were completed and published.

M.Perez opened the floor for comments; there were none.

Tab D2 – Standard 3 (report included in the 2018 meeting packet)
J.Hipp is the TG chair, confirming the TG met 2 times since the 2017 JC F2F. He detailed the timing of the 4 open issues, and M.Perez opened the floor for comments.

D.Melaragno asked for additional information regarding the rinseability test, and J.Hipp explained in greater detail the history of the issue, and that it's all about developing a method for measuring high efficiency, low water flow machines. He finished by saying the group will have to look at all the listed models with lower water flow, and develop an approach for evaluating these once the method is finalized, so as not to exclude any machines unnecessarily.

J.Leonard asked if there are any plans to look at the cutlery cleaning system again in the future now that the issue paper has been withdrawn. A.Rose said this is unknown, explaining the challenges that the manufacturer is having with how the food code is written. Said that he had spoken with the Issue Proponent recently and although the company hasn't given up, they need to sort out a game plan first.

M.Perez asked if there were any other comments; there were none.

Tab D3 – Standard 4 (report included in the 2018 meeting packet)
J.Brania is the TG chair, confirming the TG met 2 times since the 2017 JC F2F and briefly went over the open issues. M.Perez opened the floor for comments.

M.Perez asked how the certification of microwaves is accomplished, and if there is any conflict now that J.Brania has withdrawn the issue paper about enclosed spaces. M.Kohler indicated that there is no conflict as the current performance requirements are followed and if the microwaves in question meet the current standard, then enclosed spaces do not conflict.

M.Perez asked if there were any other comments; there were none.

Tab D4 – Standards 6 and 18 (report included in the 2018 meeting packet)
R.Brandt is the TG chair, confirming the TG met 2 times since the 2017 JC F2F, and provided a brief update regarding the 3 issues discussed. A.Rose added that Standard 6 is due for republication by the end of December 2018. M.Perez opened the floor for comments.

T.Johnson asked M.Kohler to further explain what needs to be changed with the performance test. M.Kohler confirmed that Kevin Smith (CPHC Member) asked NSF to look into whether the current microbiological test method would be appropriate for the test. M.Kohler confirmed with the lab that indeed the methodology was acceptable for the newly proposed 92 days.

M.Perez asked if there were any other comments; there were none.

Tab D5 – Standard 7 (report included in the 2018 meeting packet)
T.Gagliardi is the TG chair, confirming the TG met just 1 time since the 2017 JC F2F because the Standard had recently been published and the group decided to focus efforts elsewhere. He confirmed the TG is scheduled to meet next on September 25, and provided a brief summary of the open issues.

M.Perez opened the floor for comments; there were none.

Tab D6 – Standard 12 (report included in the 2018 meeting packet)
M.Perez is the new TG chair and thanked S.Burton-Zick for her efforts over the last couple years as acting TG chair. He confirmed the group met 2 times since the 2017 JC F2F, and provided a brief update regarding the 2 open issues.

M.Perez opened the floor for comments; there were none.

Tab D7 – Standard 25 (report included in the 2018 meeting packet)
D.Negandhi is the TG chair, confirming the group met 1 time since the 2017 JC F2F, and explained the one open issue facing the TG, specifically to synchronize the NAMA vending machine standard with NSF 25 so NAMA standards can be retired.

M.Perez opened the floor for comments and there was none, so he asked if it has been decided to ballot each section independently or all at once. D.Negandhi confirmed that each section sent to straw ballot thus far has each section separated, but the limited number of suggested revisions perceived would suggest that these sections can be combined into one ballot once it is sent to the JC as an approval ballot

M.Perez asked if there were any other comments; there were none.

Tab D8 – Standard 51 (report included in the 2018 meeting packet)
B.Sickles is the TG chair, and explained that the group met 3 times since the 2017 JC F2F, and is scheduled to meet next on October 16, 2018. He provided a brief update regarding the open issues, adding that 2 issues were completed and standard 51 published in May 2018.

M.Perez opened the floor for comments and questions.

Regarding the open issue of solid surfacing materials, Massoud asked what the negative vote was about at the CPHC. B.Sickles said it appears from the comment that the negative voter was a bit disconnected from the intent of the language so we may only need a brief discussion to clear this up. When this occurred, the Standard (170 in this case) was being published and there was no time to clear it up because the publication deadline was looming.

M.Perez asked if there were any other comments; there were none.

Tab D9 – TGs for Standards having no action since 2017 F2F (report included in the 2018 meeting packet)

M.Perez reported on the active TGs that have had no teleconferences since the previous F2F meeting, and asked if there were any comments; there were none.

Tab E – FDA Presentation – Girvin Liggans, Ph.D, REHS, DAAS
G.Liggans presented the highlights regarding the 2017 update of the Food Code, confirming that his presentation today was not available to share, however questions asked outside this meeting can be directed here:

Email: retailfoodpolicyteam@fda.hhs.gov
Website: http://www.fda.gov/RetailFoodProtection

M.Perez opened the floor for comments and questions.

J.Brady asked M.Kohler how the new definition change in vending machines affects Standards 25 or 170. M.Kohler and Larry confirmed it doesn't, as the new Food Code definition is already the updated one in both NSF Standards.

T.Jumalon asked a question about the addition of the new term "*intact meat*", and if G.Liggans could explain how this relates to Gyro meat. G/Liggans stated the new definition:

> **"Intact Meat"** means a cut of whole muscle(s) meat that has not undergone comminution, injection, mechanical tenderization, or reconstruction.

Then he added that Gyro meat is not considered a whole meat roast, thus it's not "*intact meat*". T.Jumalon agreed, and added the way it's handled is like a whole muscle roast, to which E.Todd

asked how the operator is supposed to know whether a piece of meat is "*intact*" or not. G.Liggans provided another example of injected muscle, and said that it will be spelled out on the label such that if the label does not specifically state "*Not Intact*" then the meat is considered "*intact*"

Then the question was asked to explain the rationale surrounding the change in raw animal foods being cooked for 15 seconds to "*165°F or above for < 1 second (instantaneous)*". Girvin confirmed this was updated based on current USDA data, adding that marking instructions in the Food Code have been likewise update to avoid confusion.

L.Rodriguez asked when the supplement would officially be out, and G.Liggans said 2019-2020.

T.Johnson asked if there was any discussion about allergens, and more specifically is it likely they are going to eventually be treated like pathogens. G.Liggans said these are tricky, as there are a number of extenuating things going on. For instance, is it practical to have 100% allergen free restaurants? There is actually a lot being discussed and no telling where it will end up.

J.Hipp asked G.Liggans to expound on a subject not within the presentation but was raised by the CFP recently, specifically regarding the updates to the cleaning agent and temperature requirements for Dishwashers. G.Liggans indicated the question raised by the CFP is regarding wash water, and basically that the temperature must be 120ºF or as specified on manufacturers label. This poses a problem because by trying to make the equipment standard relying on chemical label, it now has to vary depending on the label of wash water chemical. M.Kohler added this is one of the points trying to align with the food code and having no conflict. In this case, there are specific requirements for Standard 3 and they meet the current code. With this potential update in the code, we will need to decide how the Standard will evolve.

T.Johnson asked where 120ºF comes from, and G.Liggans indicated this is a historical value, which has been in existence for a long time. The chemical suppliers would argue that higher temperature works better, but that's not to say 120ºF doesn't work at all. There are some municipalities looking for water/energy conservation and now we're asking a different question: is 120ºF good enough.

M.Perez asked if there were any other comments; there were none.

Tab F – New Issue Papers and Interpretation Requests

With a few extra minutes remaining in today's meeting schedule, M.Perez decided to skip to 2 straightforward Issue Papers he submitted to finish up the day's meetings, specifically Tabs F2 and F3. Tab F1 would begin the discussion at tomorrow's meeting.

Tab F2 – New Issue Paper FE-2018-08 – Change of NOTE in 5.2.1 of Standard 8

M.Perez is the issue proponent and presented his paper and supporting documents. He added that research suggests when the FE Standards became ANSI Certified about 20 years ago, there

were several NOTEs in various previous publications of FE Standards that were erroneously carried over as NOTEs in the ANSI publications. M.Perez reminded the group that by ANSI definition, NOTEs call out Informative sections within the Normative portion of a Standard. In the case of this particular NOTE, the language is Normative and should be presented without the use of the term "NOTE".

Recommendation is to send this directly to JC Approval Ballot:

5.2 Internal angles and corners

5.2.1 Internal ~~corners or~~ angles or corners of less than 135° in a food zone shall be smooth and have a minimum continuous radii of 1/8 in (0.13 in, 3.2 mm).

~~NOTE – Lesser radii may be used where necessary to ensure the proper functioning of parts (such as sealing ring grooves, saw guides, hles and grooves) provided they are easily cleanable.~~

5.2.1.1 Lesser radii may be used where necessary to ensure the proper functioning of parts such as:

- sealing ring grooves
- saw guides
- holes
- grooves

M.Perez opened the floor for comments

Motion by J.Hipp:	Send directly to JC Approval Ballot.
Second:	D.Negandhi
Further discussion:	J.Leonard asked M.Perez to explain the rationale of moving the word 'corners' to be after the word 'angles'. M.Perez said this was simply to match the alphabetical ordering within the title of the section itself.
Vote:	Twenty-seven in favor, Zero Opposed, Zero Abstain
Motion:	Carries

Action item: A.Rose to send directly to JC Approval Ballot

Tab F3 – New Issue Paper FE-2018-09 – Change of NOTE in 5.4.2 of Standard 21

M.Perez is the issue proponent and presented his paper and supporting documents. He indicated that much the same as the issue paper just discussed (FE-2018-08), the NOTE in this section is also Normative in nature so the term 'NOTE' should be removed and this language given its own section number.

Recommendation is to send this directly to JC Approval Ballot:

5.4 Cover requirements

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5.4.2 Thermoplastic refuse containers used primarily outdoors shall have a cover that, when in place, prevents water from entering the container opening.

~~NOTE — Thermoplastic refuse containers used primarily indoors are exempt from this requirement. Covers with swinging-closure mechanisms are acceptable for indoor use.~~

5.4.2.1 Thermoplastic refuse containers used primarily indoors are exempt from this requirement. Covers with swinging-closure mechanisms are acceptable for indoor use.

Opened the floor for comments

Motion by D.Negandhi:	Send directly to JC Approval Ballot.
Second:	R.Brandt
Further discussion:	D.Melaragno asked if there are labeling requirements for swinging covers. K.Fall indicated there are no specific requirements to label, and the intent is that it's obvious for indoor versus outdoor equipment. J.Leonard followed up with the question of how the user would know this. M.Perez indicated this was a good question but not germane to the issue on the floor adding the intent is that this is an exemption and the removal of the word 'NOTE is appropriate.
Vote:	Twenty-seven in favor, Zero Opposed, Zero Abstain
Motion:	Carries

Action item: A.Rose to send directly to JC Approval Ballot

M.Perez asked if there were any other items of existing business not listed on the agenda; none were brought to the floor and the meeting was adjourned for the day.

M.Perez reconvened the meeting at 8:00 am on August 23rd.

Tab F1 – New Issue Paper FE-2018-07 – Glass in Bi-Metal Thermometers

E.Halberg as proxy for F.Chan presented issue paper and supporting documents regarding the use of Glass in Bi-Metal Thermometers

FE-2018-07 - Glass in Bi-Metal Thermometers.pdf

M.Perez opened the floor for comments

M.Perez asked E.Halberg if the suggestion was to change the Standard, and if so how. Eric said yes; the current test is too rigid and there are no thermometers in the market that will pass the breakage test. To this Massoud asked if no thermometers can currently pass, how are they certified and M.Kohler confirmed the standards are for glass in general, and specifications that glass suppliers must meet. That is typically as far as the testing goes. Thus, the requirements are satisfied regarding the raw material specifications of the glass.

Motion, by S.Schaefer:	Send issue to 51 TG for review
Second:	J.Hipp
Discussion:	Returning to the raw material question, J.Petersen asked if this applies to probe thermometers or others; mike confirmed it applies to glass anywhere and J.Hipp read ~~off~~ the pertinent section of Standard 51:

4.1.1 Glass and glass-like materials

Glass and glass-like materials, including porcelain, porcelain enamels, and ceramic coatings, shall not be used on surfaces intended for direct food contact that are also subject to impact by hard objects during use (e.g., countertops, tabletops, cutting boards, cooking surfaces) except as permitted in 4.2.4.1.

4.1.1.1 Glass and glass-like materials may be used on grated cooking surfaces.

4.1.1.2 When used on splash zone and food zone non-direct food contact surfaces that may be subject to impact by hard objects during use, glass and glass-like coatings shall meet the impact resistance requirements in 10.3.

4.1.1.3 When used on direct food contact surfaces that are not subject to impact, glass and glass-like coatings shall meet the impact resistance requirements in 10.4. Glass-like coatings shall yield an adherence rating of 3 or better when tested according to ASTM B 916.

4.1.1.4 Glass, other than light fixtures, that may be subject to contact during use and routine maintenance and cleaning shall conform:

— to the impact test in ANSI Z97.1 for Class A glass; or
— to the impact test within ANSI/UL 197; or
— to the impact test within BS857:1967.

And asked if those performance requirements not applicable to thermometers, to which mike indicated those

are for glass like coatings, not to safety glass. J.Hipp suggested the TG consider a rewrite discussion based on the use. M.Nashan suggested that all the other glass standards referenced have nothing to do with this application.

J.Brania then referenced the video presented by E.Halberg stating that in general, there are a number of consistency challenges with duplicating this in other labs so if the TG agrees to develop a method here, it will require some work on the method development. J.Brady suggested that there are tens of thousands of these instruments in the field and have been there for many years, and has anyone here seen an issue? A couple regulators indicated that they have seen instances where broken thermometer glass has occurred, thus there may be a need to update the language.

Vote: Twenty-six in favor, Zero Opposed, B.Sickles Abstained
Motion: Carries

Action item: A.Rose to send to TG on Food Equipment Materials

Tab F4 – New Issue Paper FE-2018-10 – Food Shields

J.Murray is the issue proponent and presented his paper, supporting documents and video presentation.

FE-2018-10 - Food Shields.pdf

M.Perez opened the floor for comments

M.Samarya-Timm asked if there are studies comparing microbial load derived from respiratory sources versus from user's hands. T.Gagliardi reminded the group that the last time they dug into this topic, a myriad of work was completed, and the video here still presents failures of user execution. He added that in his opinion, it's a no win situation because hand contact is an issue and much as the perception of the value of the 'sneeze guard'. J.Murray agreed this was a burdensome issue, but simply trying to find a better middle ground. T.Jumalon said the obvious fix would be to make the food well less deep, to which J.Murray indicated the customer of the equipment dictates that part largely, and they don't want to have to fill up small food wells every few minutes.

M.Perez reminded the group that for further discussion, there has to be a motion on the floor.

Motion by M.Nashan:	To send to a task group
Second:	K.Northcutt
Discussion	P.Matus suggested that what is being proposed was discussed for 3 years in the TG already, thus this will all be regurgitated. J.Murray said he understood, adding he has several large customers complaining about what steps are being taken to affect a change. It's an inconvenience for him as well because all his equipment is current with the standard so it would be a lot of money and time to change as well. M.Nashan said he hears the same requests from his customers, but it has to be practical and usable. T.Johnson agreed this has all been discussed before but enough time has passed where a new discussion is warranted. J.Peterson said that several years ago, this subject came up and we questioned as a group how many documented cases were due to respiratory versus hands. This also needs to be front of mind this time if this goes to TG. J.Brania said that sometime a long time ago, it was decided that a full size pan 12" x 20" was correct. Why not offer a 16" pan. Then the food would also be fresher because it was replenished more often. M.Kohler added we've talked about a risk assessment before, but in the long run, this is simply a quality thing not a wholesomeness thing. T.Gagliardi reminded the group that the problem with risk based methods here is the time of '*infection'* of one person to another is not long enough to establish connection epidemiologically. S.Burton-Zick suggested there's nothing wrong with the current language. These same end users are making adjustments to the equipment after the regulator evaluates and it's defeating the purpose. T.Gagliardi called the motion to question. J.Brady asked for the friendly amendment to be specific about which TG to send to, specifically to the food shields TG.
Vote:	Seventeen in favor, Seven Opposed, Three Abstained
Motion:	Carries

Action item: A.Rose to send to TG on Food Shields

Tab F5 – New Issue Paper FE-2018-11 – Change of NOTE in Section 5.2.2 of Standard 5

J.Wallace is the issue proponent and presented his paper and supporting documents. He indicated this and his next issue paper were essentially the same in that he is looking to update the two "NOTEs" in the Standard, per the discussion held early about "NOTEs" being informative and not normative.

FE-2018-11 - Change of NOTE in 5.2.2.pdf

M.Perez opened the floor for comments

Motion by T.Johnson:	Send it to task group on Standard 5
Second:	M.Nashan
Discussion:	J.Wallace indicated his intent was to have this go directly to ballot like the other "NOTEs" as this is very straightforward. Tony agreed adding that section 5.2.2 is in conflict with what the NOTE states. J.Brady suggested this language may have been pulled directly from the back of the Standard for suggested installation procedures, and he read off the statement from Standard 2. M.Kohler confirmed Section 5.2.2 is referring to underneath the water heater, and the NOTE is referring to service connections on the side of the machine.
Vote:	Thirteen in favor, Seven Opposed, Seven abstentions
Motion:	Carries

Action item: A.Rose to send to TG on Standard 5

Tab F6 – New Issue Paper FE-2018-12 – Change of NOTE in Section 7 of Standard 5

J.Wallace is the issue proponent and presented his paper and supporting documents. He explained that the recommendation on this one is to merge the NOTE into the product literature paragraph, unlike the previous NOTE being removed utterly.

FE-2018-12 - Change of NOTE in 7.pdf

M.Perez opened the floor for comments

Motion by J.Leonard:	Send language directly to JC ballot
Second:	T.Gagliardi
Discussion:	None
Vote:	Twenty-seven in favor, Zero Opposed, Zero Abstention
Motion:	Carries

Action item: A.Rose to send directly to JC ballot

Tab F7 – New Issue Paper FE-2018-13 – Potable Water Definition

J.Brady is the issue proponent and presented his paper and supporting documents. He explained how this topic came up during a Standard 12 TG meeting, and after conducting some research learned the term is used somewhat differently in 11 different standards.

FE-2018-13 - Potable Water Definition.pdf

M.Perez opened the floor for comments

Motion by J.Scanlon:	Send to Standard 12 TG for review
Second:	T.Gagliardi
Discussion:	B.Corrao asked how the definition would work, and is there one already elsewhere. J.Brady indicated there isn't currently a definition and the intent would be for it to apply to all standards. E.Todd indicated the World Health Organization lists additional hazards than listed in this draft language. J.Leonard asked if this will apply to other NSF standards, and M.Kohler said just food equipment. J.Peterson read ~~off~~ Merriam Webster definition, adding what is this group seeking beyond that. M.Perez confirmed that at this point there is no definition in Standard 170 so one should be created that fits all FE Standards. L.Eils suggested the EPA has this defined already and is probably close.
Vote:	Twenty-six in favor, Zero Opposed, One Abstention
Motion:	Carries

Action item: A.Rose to send to Standard 12 Task Group

Tab F8 – New Issue Paper FE-2018-14 – ICP Changed to CIP

M.Kohler is the issue proponent and presented his paper and supporting documents, explaining the background related to the Conference for Food Protection (CFP).

FE-2018-14 - ICP changed to CIP, including support documents.pdf

M.Perez opened the floor for comments

Motion by T.Johnson:	Send this language to the TG on Food Equipment Materials
Second:	J.Brady
Discussion:	T.Johnson suggested it's important to understand that CIP (clean-in-place) is a subset of IPC (in-place-cleaning), IPC is visual and CIP is not. This JC should be careful not to get rid of the concept of IPC. M.Kohler confirmed the intent here

	is generally to change many of these used terms to CIP, but there will be places where manual IPC is needed. T.Johnson further explained the difference of CIP versus IPC, mainly that CIP is a plumbed process and IPC is not. There was various questions about the semantics of the terms and the following example seemed to clear this up. A large mixing bowl, too heavy to move easily, receives manual IPC, whereas soft serve ice cream equipment, which has inaccessible internal parts is plumbed and cleaned using CIP.
Vote:	Twenty-seven in favor, Zero Opposed, Zero Abstentions
Motion:	Carries

Action item: A.Rose to send to TG on Food Equipment Fabrication

Tab F9 – Request for Interpretation – Tubing
Tab F10 – New Issue Paper FE-2018-15 – Tubing in Cappuccino Machines

M.Perez presented the RFI, explained the intent as discussed by the requester. Following discussion with M.Kohler, it was decided that an Issue Paper proposing revised language would add clarity to the language.

Perez-Trivedi - Cappuccino Machine Milk Supply Tubing RFI; 2018-07-30, including RFI.pdf
FE-2018-15 - Tubing in Cappuccino Machines.pdf

M.Perez opened the floor for comments

Motion by M.Kohler:	Send this language to Standard 4 TG
Second	B.Glynn
Discussion:	B.Poton explained the background of the RFI for his colleague not in attendance, specifically concerning the piece of tubing outside the refrigeration portion of the equipment. B.Glynn asked how this fits with other milk dispensing equipment. M.Kohler confirmed that falls under Standard 20 and is covered there. He added that as far as the 'pull back' is concerned, there isn't anything defined for that yet, but could be discussed during the TG calls
Vote:	Twenty-seven in favor, Zero Opposed, Zero Abstentions
Motion:	Carries

Action item: A.Rose to send to TG on Hot Food Equipment

Tab F11 – New Issue Paper FE-2018-16 – New Biofilm Cleaning Standard

T.Johnson is the issue proponent and presented his paper and supporting documents, explaining that he's not certain if a new standard is best, or language within an existing standard would suffice. The real ask here is a TG be developed for Biofilm discussion

FE-2018-16 - New Biofilm Cleaning Standard.pdf

M.Perez opened the floor for comments

E.Todd said it's not just food where this exists, this would include water as well. J.Brady asked if there was a clear idea would the primary equipment would be for this, to which T.Johnson suggested any plumbed system without visible inspection and cleaning possibilities. This would include several standards like 4, 7, 12, 18, or any that would depend on surfaces you cannot see. B.Corrao asked for citation of specific equipment, and T.Johnson said that right now the performance testing is completed on virgin equipment, and not taking well into account what's happening in the field.

M.Perez indicated that separately and prior to T.Johnson submitted this paper, he initiated a dialog with Dr. Paul Sturman, a microbiologist specializing in biofilms. They are discussing developing language to address biofilms to the cleaning and sanitizing test protocol of Standard 12. Dr. Sturman indicated the challenge culture already used in the Standard~~s~~ 12 adequate, and he suggests that simply updating the test protocol would be a great approach.

FE-2018-16a - Standard 12 Ice Machine Cleanability - Biofilms.pdf

He confirmed that Dr. Sturman and he were working to drafting an issue paper.

M.Kohler said the discussion is surrounding water, and it's important to consider other machines that don't use just water like soft serve ice cream machines. M.Perez said that was a great point we'll have to develop the thinking around this.

T.Johnson suggested beginning with ice machines, the said he would like to withdraw his issue paper because he was unaware about the great work already being done prior to submitting his general issue paper. M.Perez invited T.Johnson to join the effort to draft an issue paper, which was accepted.

Action item: A.Rose to withdraw Issue Paper

Tab G – CFP Presentation – Derek Deland

D.Deland presented specifics regarding the Conference for Food Protection, and its role in promoting retail food safety.

CFP Presentation for 2018 FE JC.pptx

M.Perez opened the floor for comments; there were none.

Tab H – Other New Business

Per the motion on day 1 regarding the possible new agenda items, M.Perez confirmed that B.Glynn had submitted 2 new issue papers and is ready to present them here today. B.Glynn explained the background for both was with respect to comments she provided on the retiring of Standard 36 – dinnerware. The intent for which is to discuss what if any specifics in 36 should be updated into Standard 2.

Tab H1 – New Issue Paper FE-2018-17 – Glass in Food Zone

B.Glynn presented her issue paper and supporting documents, explaining this first paper is for incorporating test protocols for types of breakable dinnerware.

FE-2018-17 - Glass in Food Zone.pdf

Motion by T.Johnson:	Send this to the TG on Food Equipment Fabrication
Second:	S. Schaefer
Discussion:	T.Johnson asked is there currently an impact test for dinnerware, and if not should one be created. B.Glynn explained what they do at Starbucks, and the thought for developing specific methods for testing in Standard 2. The problem now is that there is no consistent method so we've cobbled together various methods used elsewhere. B.Corrao asked how this relates to health and safety, and B.Glynn said there is a potential for breakage close to ice bins, so dinnerware needs to be durable. M.Kohler confirmed there currently are no ceramic glassware standards in the FE suite, however some time back he put in an Issue Paper to include glassware. At that time the JC refused. J.Brady called up and read off the IP submitted by M.Kohler in 2000.

Excerpt:

Standard 36—Dinnerware

Mike Kohler (NSF International) gave an overview of the scope of the current Standard 36. There is a note in the Standard regarding the exclusion of glassware. He asked the Joint Committee if the scope should be expanded to include chinaware and glassware.

M. Elliot thought there might be a concern about the glazes used in making the chinaware and glassware. K. Northcutt asked if flatware is or could be included in Standard 36 as well. M. Whybark replied that flatware is covered by Standard 2. Mr. Perez then asked why glassware and chinaware were excluded from Standard 36. To which M. Whybark replied that those items had been excluded because they could not pass the impact test.

M. Kohler added that there is now glassware available which is capable of driving nails into two by fours. M. Schwartz questioned why regulators have not expressed a need for this. J. Hipp expressed concern that if we included these items to be covered by that standard that only new glassware might be able to meet the standard. Mr. Schwartz viewed it as an effort from manufacturers to try to get the NSF Mark for marketing purposes.

Jim Brady stated that he would feel safer if glassware had some type of testing. ***Mr. Schwartz made a motion that NSF should stay away from adding glassware and chinaware to Standard 36 unless there is a request from the regulatory sector to add it to the standard. The motion carried.*** *Glassware and chinaware will not be added to Standard 36 unless a need from the regulatory sector is later expressed.*

T.Jumalon then asked what the purpose would be for adding this to Standard 2. B.Glynn said she is hearing from manufacturers that NSF does not require testing, and it would be easier for her as a user if there was somewhere to point to for testing. M.Samarya-Timm indicated that as a regulator and user of the ceramic cups, she sees value in updating the performance testing to include this, adding it would set the bar above and beyond the food code. T.Jumalon said he doesn't see how putting something in a standard gives any power to regulators. The ownership needs to be placed on the users. B.Glynn provided an example of lead in dishware and how some years back that was not surprising to find lead in wine glasses. J.Murray suggested this sounds like a quality measurement, not public safety. J.Leonard.

Vote: Twenty-four in favor, Three Opposed, Zero Abstentions
Motion: Carries

Action item: A.Rose to send to TG on Food Equipment Fabrication

Tab H2 – New Issue Paper FE-2018-18 – Dinnerware versus Tableware

B.Glynn presented her issue paper and supporting documents, explaining this second paper is regarding the terms dinnerware and tableware.

FE-2018-18 - Dinnerware versus Tableware.pdf

Motion by T.Johnson: Send this to the TG on Food Equipment Fabrication
Second: J.Scanlon
Discussion: J.Hipp indicated that *tableware* is not defined in 170, so we'll have to develop that as well. M.Kohler confirmed that

	tableware was in the Food Code and includes flatware, so we may have to keep that in mind as well.
Vote:	Twenty-five in favor, Zero Opposed, Two Abstentions
Motion:	Carries

Action item: A.Rose to send to TG on Food Equipment Fabrication

Tab I – Meeting Wrap Up

M.Perez thanked everyone for attending, and NSF for hosting the meeting. Confirmed the next proposed date for a Face-to-Face meeting is August 21-22, 2019. A doodle poll will be going out in the weeks ahead to establish.

M.Perez asked if there was any other new business. M. Samarya-Timm suggested the JC should seek additional gender equity. M.Perez acknowledged the comment.

M.Perez then publicly thanked Roger Coffman who retired from the JC earlier in 2018 and not currently attending. He further recognized the many years of service Roger had contributed and appreciative of the excellent participation. M.Perez then indicated that K.Northcutt (present) is announcing now that this would be his last meeting as well, and thanked K.Northcutt for his many years of service. K.Northcutt also gave thanks to the group and to NSF for the opportunity to participate and wish everyone the best of luck.

M.Perez asked if there were any further comments; there were none.

Motion by R.Brandt:	To adjourn
Second:	J.Scanlon
Discussion:	none
Vote:	Twenty-Seven in favor, Zero Opposed, Zero Abstentions
Motion:	carries

LIST ACTION ITEMS:

Tab F2 – New Issue Paper FE-2018-08 – Change of NOTE in 5.2.1 of Standard 8
A.Rose to send directly to JC Approval Ballot

Tab F3 – New Issue Paper FE-2018-09 – Change of NOTE in 5.4.2 of Standard 21
A.Rose to send directly to JC Approval Ballot

Tab F1 – New Issue Paper FE-2018-07 – Glass in Bi-Metal Thermometers
A.Rose to send to TG on Food Equipment Materials

Tab F4 – New Issue Paper FE-2018-10 – Food Shields
A.Rose to send to TG on Food Shields

Tab F5 – New Issue Paper FE-2018-11 – Change of NOTE in Section 5.2.2 of Standard 5
A.Rose to send to TG on Standard 5

Tab F6 – New Issue Paper FE-2018-12 – Change of NOTE in Section 7 of Standard 5
A.Rose to send directly to JC ballot

Tab F7 – New Issue Paper FE-2018-13 – Potable Water Definition
A.Rose to send to Standard 12 Task Group

Tab F8 – New Issue Paper FE-2018-14 – ICP Changed to CIP
A.Rose to send to TG on Food Equipment Fabrication

Tab F10 – New Issue Paper FE-2018-15 – Tubing in Cappuccino Machines
A.Rose to send to TG on Hot Food Equipment

Tab F11 – New Issue Paper FE-2018-16 – New Biofilm Cleaning Standard
A.Rose to withdraw Issue Paper

Tab H1 – New Issue Paper FE-2018-17 – Glass in Food Zone
A.Rose to send to TG on Food Equipment Fabrication

Tab H2 – New Issue Paper FE-2018-18 – Dinnerware versus Tableware
A.Rose to send to TG on Food Equipment Fabrication

Joint Committee on Food Equipment
Meeting Summary
NSF Headquarters, Ann Arbor Michigan
August 22 – 23, 2018

Joint Committee Members in Attendance

Name	Company / organization	Interest category
Bhatt, Swati	Los Angeles County	Regulatory
Bortolotti, Stefano	Carpigiani	Industry
Brady, Jim	Wawa, Inc.	User
Brandt, Rex	Taylor Company	Industry
** Brania, Jonathan	Underwriters Laboratories, Inc.	User
Burton-Zick, Sara	DuPage County Health Department	Regulatory
Dyer, Randy, PhD	Nestle	User
Gagliardi, Tony	Consultant - Public Health / Regulatory	User
Glynn, Beth	Starbucks Coffee Company	User
Hall, Jon	Glastender, Inc.	Industry
Hipp, Joel	Hobart Corporation	Industry
Johnson, Tom	Qlean Tech Enterprises, LLC	User
Jumalon, Thomas, REHS	Wake County Environmental Services	Regulatory
Kohler, Mike	NSF International	User
Leonard, James, MPH, LEHP	Princess Cruises	User
Liggans, Girvin, PhD	Food and Drug Administration	Regulatory
Maxon, Gary	The Delfield Company	Industry
Negandhi, Dipak, PE, CFSP-	Manitowoc Foodservice	Industry
Neshan, Massoud	Southern CaseArts	Industry
Northcutt, Kirk	Auto-Chlor System	Industry
[1] Perez, Michael	Baring Industries	User
Peterson Jr., James	C.i.i. Food Service Design	User
Rodriguez, Luis, MS	CDC Vessel Sanitation Program	Regulatory
[2] Rose, Allan, MS	NSF International	General Interest
Samarya-Timm, Michéle	Somerset County Department of Health	Regulatory
Scanlon, John	Hatco Corporation	Industry
Schaefer, Stephen	Hoshizaki America, Inc.	Industry
Sickles, Willard, PE	InterMetro Industries Corporation	Industry
Webb, Timothy	Navy and Marine Corps Public Health	Regulatory

[1] – JC Chair

[2] – JC Secretariat

** - participation via teleconference

Joint Committee Members NOT in Attendance

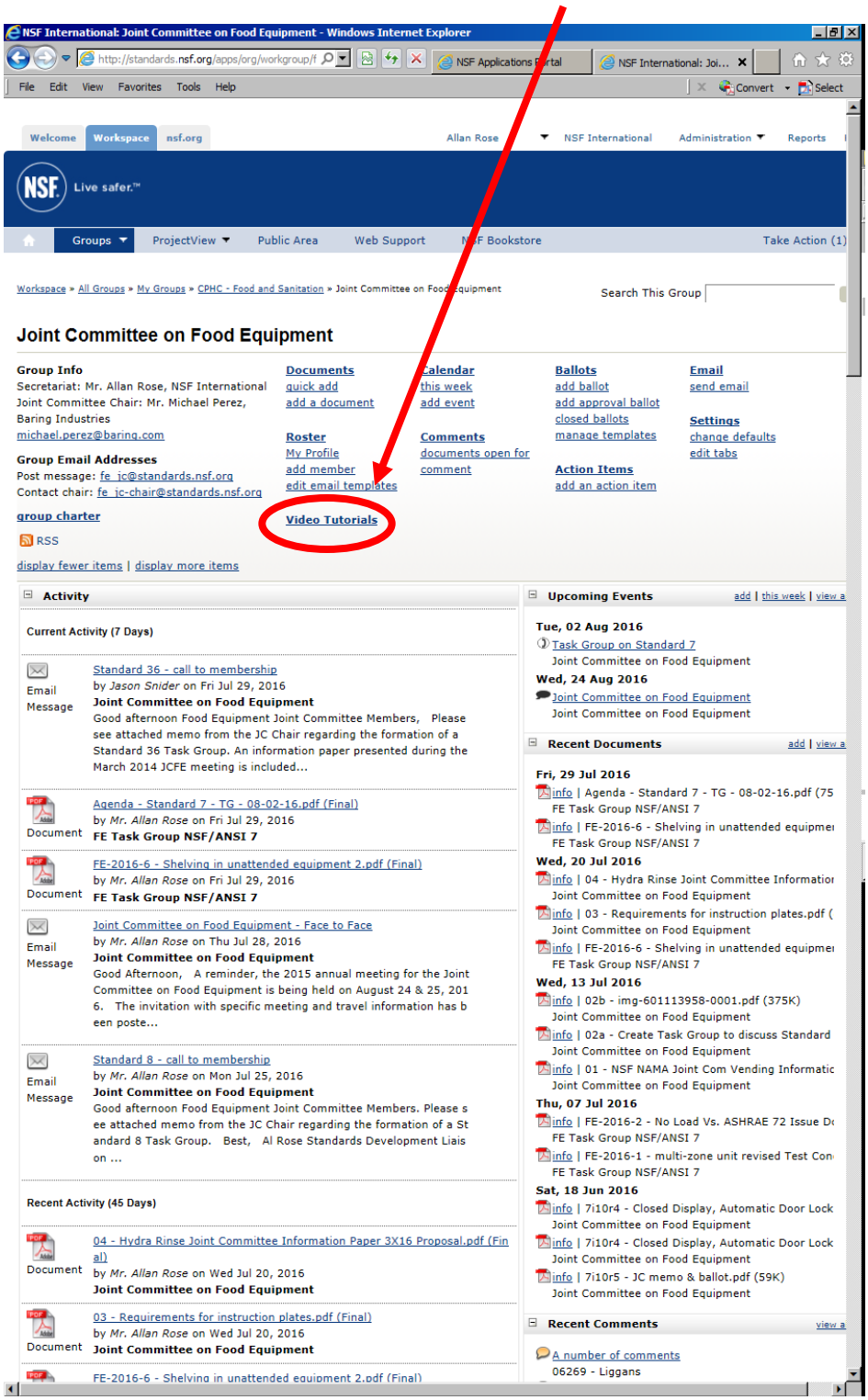
Name	Company / organization	Interest category
Brasseur, Eric	Little Caesars Enterprises	User
Dye, Shayna	Sauk County Health Department	Regulatory
Hurst, Bryan, REHS, CP-FS	Lincoln-Lancaster County Health	Regulatory
Klouse, Paul, REHS, CP-FS	Southern Nevada Health District	Regulatory
McNeil, Thomas, RS	U.S. Army	User
Tackitt, Steve	Barry-Eaton District Health Department	Regulatory

Observing Attendees

Company	Name	Interest Category	Role
Manitowoc Foodservice	Cheryl Appell	Industry	Observer
NSF International	Sarah Krol	General Interest	Observer
NSF International	Derek Deland	General Interest	Observer
NSF International	Liz Gray	General Interest	Observer
NSF International	Kelli Fall	General Interest	Observer
NSF International	Sara Risley	General Interest	Observer
NSF International	Orsi Dezsi	General Interest	Observer
NSF International	Amanda Zeoli	General Interest	Observer
NSF International	Kaylyn Brunskole	General Interest	Observer
NSF International	Tyler Acree	General Interest	Observer
NSF International	Audra Bildeaux	General Interest	Observer
NSF International	DeMarrio Boles	General Interest	Observer
Michigan State University	Ewen Todd	Public Health	Observer
NAMA	Larry Eils	General Interest	Observer
Stone Spectrum	Joshua Spencer	Industry	Observer
Versa-Gard	Pep Matus	Industry	Observer
A.O. Smith Water Products	Joe Wallace	Industry	Observer
Dairy Queen	Brent Miller	User	Observer
Dunkin' Brands	Patrick Nolan	User	Observer
Traulsen & Co	Chris Boryca	Industry	Observer
NAFEM	Charlie Souhrada	General Interest	Observer
Lancer	Kathy Magee	Industry	Observer
Vita-Mix	Nick Mazzino	Industry	Observer

Auto-Chlor	John Hockaday	Industry	Observer
J.M. Smucker Company	Bob Corrao	User	Observer
Hamilton Beach	Arron Bryant	Industry	Observer
A.O. Smith Water Products	Joe Wallace	General Interest	Observer
Cornelius, Inc.	Syed Rizvi	Industry	Observer
Cornelius, Inc.	Syed Rizvi	Industry	Observer
Structural Concepts	Jon Murray	Industry	Observer
Structural Concepts	Matt Vidro	Industry	Observer
Intertek	Lee Moomaw	User	Observer
Intertek	Nicholas Unger	User	Observer
Intertek	Danielle Melaragno	User	Observer
Intertek	Bernard Poton	User	Observer

[Link to Standards Development Process Video](http://www.screencast.com/t/80mGG33G)



Annex JCFE[1]

(informative)

Joint Committee on Food Equipment[2]

Name	Company / Organization	Interest Category
Bhatt, Swati	Los Angeles County	Regulatory
Bortolotti, Stefano	Carpigiani	Industry
Brady, Jim*	Wawa, Inc.	User
Brandt, Rex*	Taylor Company	Industry
Brania, Jonathan*	Underwriters Laboratories, Inc.	User
Brasseur, Eric	Little Caesars Enterprises	User
Burton-Zick, Sara	DuPage County Health Department	Regulatory
Dye, Shayna, REHS	Sauk County Health Department	Regulatory
Gagliardi, Tony*	Consultant - Public Health/Regulatory	User
Glynn, Beth REHS*	Starbucks Coffee Company	User
Hall, Jon	Glastender, Inc.	Industry
Hipp, Joel*	Hobart Corporation	Industry
Johnson, Tom	Qlean Tech Enterprises, LLC	User
Jumalon, Thomas, REHS	Wake County Environmental Services	Regulatory
Kohler, Mike	NSF International	User
Leonard, James, MPH, LEHP	Princess Cruises	User
Liggans, Dr. Girvin	Food and Drug Administration	Regulatory
Massoud, Neshan	Southern Case Arts	Industry
Maxon, Gary	The Delfield Company	Industry
McNeil, Thomas	U.S. Army	User
Negandhi, Dipak*, P.E.	A.O. Smith	Industry
Perez, Michael**	Baring Industries	User
Peterson Jr., James	C.i.i. Food Service Design	User
Peterson, Rick, RS	Norwalk Community College Hospitality Program	Regulatory
Rodriguez, Luis, M.S.	CDC Vessel Sanitation Program	Regulatory
Samarya-Timm, Michele	Somerset County Department of Health	Regulatory
Scanlon, John*	Hatco Corporation	Industry
Schaefer, Stephen	Hoshizaki America, Inc.	Industry
Sickles, Willard*, P.E.	InterMetro Industries Corporation	Industry
Tackitt, Steve*	Barry-Eaton District Health Department	Regulatory
Webb, Timothy MS, REHS	Navy & Marine Corps Public Health Center	Regulatory

Joint Committee Secretariat: Al Rose

Membership Balance:
- Industry: 10
- Regulatory: 10
- User: 10

*Task group chair **Joint Committee Chair (non voting)

[1] The information contained in this Annex is not part of the American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for ANS. As such, this Annex may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.

[2] Food Equipment Joint Committee members on the date of publication - subject to change 07/26/2019

Joint Committee on Food Equipment
Members with 100% Voting Record

Since the previous Face-to-Face meeting in August 2018, there have been a total of 21 JC Approval Ballots. The average voting over all 21 ballots was 95% participation

We would like to recognize and thank those members who voted on all of these:

Stefano Bortolotti
Jim Brady
Rex Brandt
Jonathan Brania
Eric Brasseur
Shayna Dye
Tony Gagliardi
Jon Hall
Joel Hipp
Tom Johnson
Mike Kohler
Girvin Liggans
Gary Maxon
Dipak Negandhi
Massoud Neshan
Jim Peterson
Luis Rodriguez
John Scanlon
Stephen Schaefer
Bill Sickles
Tim Webb

Thank you Food Equipment Joint Committee Members!

August 2018 - August 2019 JCFE Voting

8/8/2019							2i33r1	4i25r1	7i20R3	51i19r1	4i28r2	170i25r4	2i35r1*	2i34r3 & 170i24r2	7i22r1	170i25r3	170i26r1	170i21r6	51i16r2	3i16r1	7i21r2	170i22r1	6i14r3	3i14r3	21i7r1	8i16r1	12i9r1
Name	Company	Total Ballots	Ballots Cast	Participation			Dinnerware to Tableware	Fwe 5.48 Exemption	Drains	Surface Cleanability	Tubing in Capuccino Machines	Dinnerware see tableware	NR Update (metric)	IPC to CIP	NR Update	Dinnerware v Tableware	NR Update	Solid Surface Materials	Solid Surface Materials	NR Update	Seams in 6.3	Heated Organic Cpating	Incrassed Lock-out Time	Air Gap Reference 5.9.2	Note in 5.4.2	Note in 5.2.1	Challenge Culture Temp
Ballot Open Date		21					Wed, July 17	Mon, July 1	Tue, May 28	Fri, May 10	Wed, May 8	Wed, Apr 17	Wed, Apr 10	Tue, Mar 26	Tue, Mar 19 2019	Mon, Mar 4 2019	Tue, 26 Feb 2019	Tue, 15 Jan 2019	Tue, 15 Jan 2019	Thu, 3 Jan 2019	Mon, 10 Dec 2018	Tue, 20 Nov 2018	Fri, 19 Oct 2018	Mon, 17 Sep 2018	Wed, 12 Sep 2018	Tue, 11 Sep 2018	Thu, 30 Aug 2018
Ballot Close Date							7-Aug-2019	22-Jul-2019	18-Jun-2019	31-May-2019	29-May-2019	8-May-2019	1-May-2019	16-Apr-2019	9-Apr-2019	25-Mar-2019	19-Mar-2019	5-Feb-2019	5-Feb-2019	24-Jan-2019	7-Jan-2019	11-Dec-2018	9-Nov-2018	8-Oct-2018	3-Oct-2018	2-Oct-2018	20-Sep-2018
							21	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Bhatt, Swati	Los Angeles County	21	20	95%			1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1
Bortolotti, Stefano	Carpigiani	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Brady, Jim	Wawa, Inc.	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Brandt, Rex	Taylor Co.	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Brania, Jonathan	Underwriters Laboratories, Inc.	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Brasseur, Eric	Little Caesars Enterprises	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Burton-Zick, Sara	DuPage County Health Department	21	14	67%			1	0	1	0	0	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1
Dye, Shayna, REHS	Sauk County Health Department	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dyer, Randy	Nestle	5	4	80%			ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	0	1	1	1	1
Gagliardi, Tony	Consultant - Public Health/Regulatory	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Glynn, Beth	Starbucks Coffee Company	21	19	90%			1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hall, Jon	Glastender Inc	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hipp, Joel	Hobart Corp.	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hurst, REHS, CP-FS, Bryan	Lincoln-Lancaster Co. Health Department	14	13	93%			ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Johnson, Tom	Qlean Tech Enterprises	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Jumalon, R.E.H.S., J.	Wake County North Carolina	21	19	90%			0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Klouse, REHS, CP-FS, Paul	Southern Nevada Health District	5	5	100%			ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineli g1ble	1	1	1	1	1
Kohler, Mike	NSF International	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Leonard, MPH, LEHP, James	Princess Cruises	21	19	90%			1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1
Liggans, Girvin	Food and Drug Administration	21	19	90%			0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Maxon, Gary	The Delfield Co.	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
McNeil, RS, Thomas	U.S. Army	21	20	95%			0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Negandhi, P.E., CFSP-1, Dipak	A.O. Smith	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Neshan, Massoud	Southern CaseArts	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Northcutt, Kirk	Auto-Chlor System	5	5	100%			ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	ineligible	1	1	1	1	1
Petersen Jr., James	C.i.i. Food Service Design	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Rodriguez, Luis	Centers for Disease Control and Prevention (CDC)	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Samarya-Timm, Michéle	Somerset County Department of Health	21	20	95%			1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Scanlon, John	Hatco Corp.	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Schaefer, Stephen	Hoshizaki America, Inc.	21	20	95%			1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Sickles, P.E., Willard	InterMetro Industries Corp.	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tackitt, Steve	Barry-Eaton District Health Department	21	12	57%			0	1	1	0	1	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1
Webb, Timothy	Navy and Marine Corps Public Health Center	21	21	100%			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
				Ballots Returned		608	25	24	29	25	28	28	27	26	28	29	27	30	30	29	30	30	31	33	33	33	33
				Ballots Sent Out		638	29	29	29	29	29	29	29	30	30	30	30	30	30	30	30	30	33	33	33	33	33
				Return %		**95%**	**86%**	**83%**	**100%**	**86%**	**97%**	**97%**	**93%**	**87%**	**93%**	**97%**	**90%**	**100%**	**100%**	**97%**	**100%**	**100%**	**94%**	**100%**	**100%**	**100%**	**100%**
	*** Also includes: 4i29r1, 5i10r1, 6i15r1, 8i17r1, 12r13r1, 13r7i1, 18r15i1, 20i7r1, 21i7r1, 25i12r1, 29i6i1, 35i9r1, 37i8r1, 51i18r1, 58i8r1, 169i9r1, 170i27**																										

NSF Joint Committee on Food Equipment

Please complete this application completely, execute below indicating your agreement individually and on behalf of the organization you represent to all of the following, and return to:

NSF International
789 N. Dixboro Road
Ann Arbor, MI 48105
1-800-NSF-MARK
Phone: 734-913-6866
Fax: 734-827-6108
E-mail: arose@nsf.org

If you are representing an organization, please also submit a Letter of Authorization from your organization, which Letter of Authorization must be submitted on the organization's letterhead acknowledging the content of this "Joint Membership Application Form and Agreement" and signed by an officer of the organization.

> **Sample Letter of Authorization***: "We, (organization's name), authorize (your name) to execute the "Joint Membership Application Form and Agreement" and to serve, if selected, on the NSF committee or task group. We will support (your name) for his/her time and travel expense during the tenure of his/her service."*

1. Contact Information (Type or print)

First Name Middle Initial Last Name

Company/Organization Division/Department

Job Title

Address

City State/Province

Zip/Postal Code Country

Phone/Fax E-mail Address

2. Joint Committee and/or Task Group Responsibilities

Your responsibilities and agreement as a Joint Committee or Task Group member shall include:

- active participation in and payment of travel expenses to attend Joint Committee and Task Group events,
- reviewing and voting on new Standards or proposed revisions to existing Standards,
- ensuring public health, safety, and environmental issues are properly addressed in the Standard,
- identifying research on issues affecting standards,
- identifying new areas for standards development,
- providing technical guidance to NSF on related issues,
- attending Joint Committee meetings once or twice annually, depending on need (1-2 days each),
- maintaining confidentiality of standards development materials and using such materials only for purposes of Joint Committee work and not for competitive or other purposes,
- assigning all contributions to the Standards and any standards development materials/documents (including drafts) to NSF International,
- complying with all NSF rules and policies as well as the NSF Antitrust Guide, and
- volunteering to participate on Task Groups as needed.

Joint Committee members are requested to serve a minimum three-year term.

A member may be terminated if:

- a three-year term has been completed;
- has been inactive:
  - returns less than 75% of ballots; and/or
  - misses two consecutive meetings.
- shows a lack of participation as an issue proponent or TG Chair or TG member
- as necessary, in the sole judgment of NSF, for any reason, including but not limited to helping maintain balance on the Joint Committee.

3. Interest Category (Please check the box(es) that best describes your representation on the JC.)

Note: If you fall under more than one interest category, please select the primary interest category that you wish to represent on the Committee.

□ **Industry:** A member who produces, assembles, distributes, or sells materials, products, systems, or services covered in the scope of the standard. Industry trade association representatives are included in this membership classification.

- □ Distributor
- □ Industry Trade Association
- □ Manufacturer of products covered by this Standard
- □ Manufacturer Processes

□ **Public Agency:** A member who is from a public agency.

- □ Academia
- □ Government
- □ Military
- □ Model code organization
  Professional public/environmental health/safety organization
- □ Public agency having regulatory authority for Products in this Standard

□ **User/Consumer:** A member who purchases, uses, or specifies materials, products, systems, or services covered in the scope of the standard. A member who represents an organization that provides for-profit services applying to the scope of the Standard

- □ Retailers
- □ Auditors
- □ Certification organization or test laboratory
- □ Consultants
- □ Consumer
- □ Specifier
- □ Standard developer
- □ Training provider
- □ User of products or systems covered by this Standard
- □ User/consumer Trade Associations

4. Standards Experience

Years of experience in this Standard? _____years.

Other standards activities: _____
_____
_____
_____

Please attach a brief biographical outline providing your education and work related experience associated with the scope of the Joint Committee.

5. Copyright and Intellectual Property

Standards and related development materials/documents shall be owned exclusively by NSF International and will be copyrighted by NSF International as set forth in the U.S. Copyright Act. When an individual joins, volunteers for or accepts appointment to a NSF International committee, the individual, as a condition of membership and participation, expressly acknowledges and agrees that copyrights and all rights in and to the Standards and related development materials/documents (including drafts) shall be owned by NSF International, that NSF International will register the copyright in its own name, and you and your organization agree to assign all contributions of any kind to NSF International.

6. Joint Committee Membership

Membership on a Joint Committee is offered in accordance with NSF's ANSI Approved Policies, including the requirement that the Committee represent a balance of interests. If you are qualified for voting membership, but membership in your sector is currently unavailable for whatever reason, are you interested in being placed on a waiting list?

- □ Yes, I would like my name placed on a waiting list.
- □ No, I prefer that my name not be included on a waiting list.

7. Agreement for Joint Committee Membership

In consideration of my appointment as a member of an NSF Joint Committee, I agree individually and on behalf of the organization I represent as follows:

a. I acknowledge and agree to all of the foregoing, including but not limited to the responsibilities and terms outlined in Sections 2 and 5 of this application.

b. In connection with my activities herein, I and the organization I represent shall: (a) follow and comply with all NSF rules and policies; (b) follow and comply with the NSF Code of Ethics, and agree not to encourage anyone else to violate the Code of Ethics; (c) be mindful of and take measures to comply with all US and foreign antitrust and competition laws, including as necessary hiring and consulting with legal counsel to guide my actions; and (d) comply with the NSF Antitrust Guide.

c. I intend to make and will make contributions with others members of such Joint Committee and all such contributions will be merged into inseparable or interdependent parts of a unitary work or works. To facilitate the creation of such work or works, I acknowledge and agree that my contributions (and those of my organization or company) and any resulting work or works constitute and are to be considered works made for hire. To any extent that my contributions (and those of my organization or company) or the resulting work or works are not considered a work made for hire, I hereby assign to (and shall cause any others in my organization to assign to) NSF International all right, title and interest to all said contributions and all resulting works (including drafts). I understand and agree that I acquire no rights in the resulting work or works, whether published or unpublished. I attest that I have the authority and am empowered to grant the foregoing rights to NSF International. I agree to execute any documents necessary to effectuate the full and complete intent of this Section 7.c.

d. I will not at any time during or subsequent to this agreement disclose or use in any way any confidential business information or knowledge or data I receive or develop while serving as a NSF Joint Committee member ("Confidential Business Information"), and I will not discuss any plans related to such Confidential Business Information, pricing or other information that may call into question any violation of the antitrust laws. Confidential Business Information may include, but is not limited to, draft Standards and related standards development materials/documents, business plans, prospect lists, and trade secrets of NSF or its clients. It is understood that Confidential Business Information may be disclosed to an accreditation body that is also under a nondisclosure agreement with NSF. Such disclosure shall not occur without first informing the President, NSF International.

e. I understand and agree that all Confidential Business Information, including all materials received or contributed to the Joint Committee, are to be used only for purposes of Joint Committee work and not for competitive or other purposes (either individually or by my organization). I agree to maintain Confidential Business Information in strict confidence, and not to disclosure to others (including others within my organization).

f. NSF agrees to inform Joint Committee members when a document is Confidential Business Information, either in a separate writing or by a legend on the face of such materials/documents. I agree that once the immediate activity related to the document is completed, the document will be returned to NSF and will not be disclosed to others during the time the document is in my possession. If I will be unable to maintain the document in a confidential manner, I agree to immediately return the document to the NSF Joint Committee Secretariat.

g. I (and my organization) do not now hold or have, and I do not intend to hold or to have, any patent, the use of which would be required for compliance with any material that I contribute to or author – either individually or with others – as a member of any NSF Joint Committee or Task Group, or that I submit for use of the Joint Committee or Task Group in any NSF Standard, protocol, or guideline or any other NSF document.

h. I agree to take appropriate steps to ensure that any public statement, either oral or written, which are not official statement of NSF, are properly qualified as the position or opinion of me or my organization and not NSF or the Joint Committee or Task Group. I also agree to not make any statements that mislead or have the tendency to mislead.

i. If I am removed as a Joint Committee member or my authorization to access Confidential Business Information is removed, I am still under obligation not to reveal Confidential Business Information previously received and to not in any way use (either personally or by your organization) such Confidential Business Information.

j. The restrictions regarding Confidential Business Information in Sections 7.d through 7.g above shall apply for a period of five (5) years following receipt, except that as to trade secrets the restrictions shall apply until such time it is no longer a trade secret.

k. I affirm that in my duties as a Joint Committee member, I shall represent only the interest category and role under which my membership was granted. If during the course of the performance of duties, I am unable to comply with this requirement, I shall abstain from active discussion and voting relative to the issue in question.

l. This Agreement shall be governed by, and interpreted under Michigan law, without reference to its conflicts of law provisions. Any legal action relating to this Agreement and/or my participation as an Joint Committee or Task Group member shall be brought in the United States District Court for the Eastern District of Michigan if it has subject matter jurisdiction, and otherwise in the appropriate District Court or Circuit Court in the State of Michigan as provided in the venue statutes of the State of Michigan. The parties waive all questions of personal jurisdiction or venue for the purpose of carrying out this provision and agree not to invoke the jurisdiction of any other court.

I understand this application is a voluntary request to NSF to review my qualifications for approval as a Joint Committee member.

I certify that all the information contained in this application is correct to the best of my knowledge and I understand that any false statement or misrepresentation on this application may result in the denial or revocation of any NSF approval (in addition to any other remedy available to NSF).

Intending to be legally bound, I agree individually and on behalf of the organization I represent to all of the foregoing.

Applicant's Signature _____ Date _____

4836-1061-5673, v. 2

NSF International 75th anniversary Timeline/History

1944

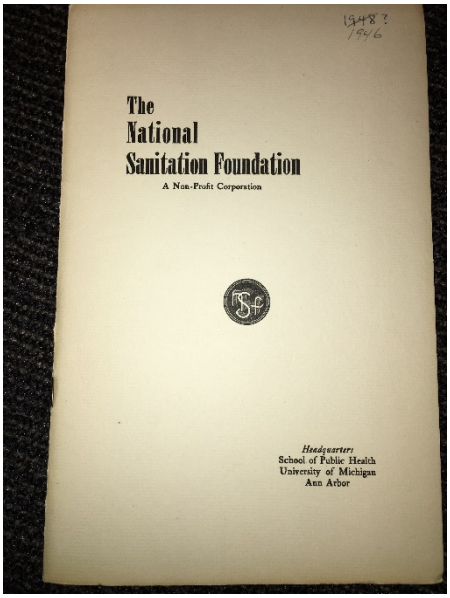
•Walter F. Snyder, Dr. Henry Vaughan and Dr. Nathan Sinai incorporate the National Sanitation Foundation (NSF) as a non-profit organization at the University of Michigan's School of Public Health in Ann Arbor, Michigan to develop national standards for commercial foodservice equipment.

1946

• The Committee of Consultants on Sanitation (now known as the Council of Public Health Consultants) meets for first time in Cleveland, Ohio.

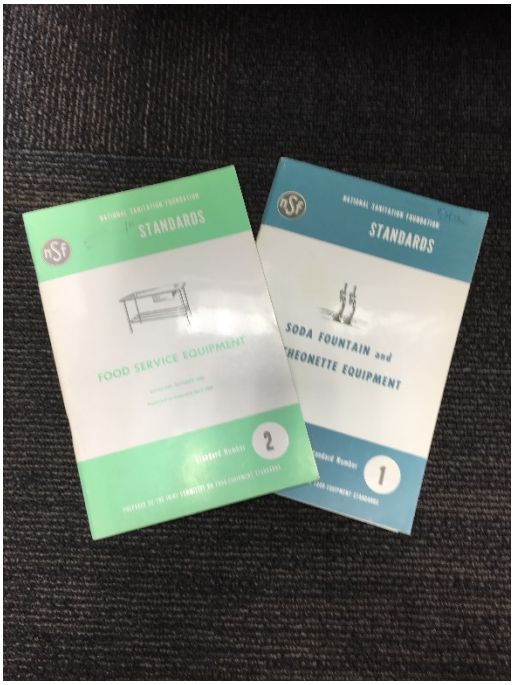
1948

•Approximately 300 representatives of government, industry and the public discuss sanitation issues at the First National Sanitation Clinic in Ann Arbor, Michigan.



1952

•The first food equipment standards are introduced: NSF Standard 1 for soda fountain/luncheonette equipment and NSF Standard 2 for food service equipment.



•The National Sanitation Foundation Testing Laboratory (NSFTL) is established as a separate corporation to test compliance with NSF standards.

1953

•Standard 3 Spray-Type Dishwashing Machines (now known as NSF/ANSI 3: *Commercial Warewashing Equipment*) is published as part of NSF's food equipment standards.

1958

•What is now known as NSF/ANSI 4: *Commercial Cooking, Rethermalization and Powered Hot Food Holding and Transport Equipment* is developed.

1959

•What is now known as NSF/ANSI 5: *Water Heaters, Hot Water Supply Boilers, and Heat Recovery Equipment* and NSF/ANSI 6: *Dispensing Freezers* is developed.

1961

•The standard for commercial powered food preparation equipment (currently known as NSF/ANSI 8: *Commercial Powered Food Preparation Equipment*) is developed.

1966

•NSF/ANSI 7: *Commercial Refrigerators and Storage Freezers*, NSF/ANSI 18: *Manual Food and Beverage Dispensing Equipment* and NSF/ANSI 20: *Commercial Bulk Milk Dispensing Equipment* are published.

1969

•NSF/ANSI 29: *Detergent and Chemical Feeders for Commercial Spray-Type Dishwashing Machines* is published.

May 1978

•Two additional food equipment standards, NSF/ANSI 51: *Food Equipment Materials* and NSF/ANSI 52: *Supplemental Flooring*, are published.

1990

•NSF and NSF Testing Laboratories merge to form NSF International.
•Organization name changes from National Sanitation Foundation to NSF International.

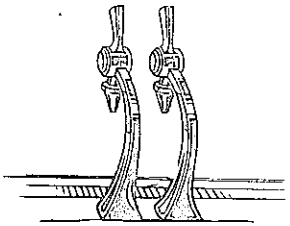
1999

•New state-of-the-art headquarters and labs open in Ann Arbor, Michigan.

4/69

NATIONAL SANITATION FOUNDATION

STANDARDS



SODA FOUNTAIN and LUNCHEONETTE EQUIPMENT

Standard Number 1

SEAL OF APPROVAL

To identify equipment that has met
NSF Standards & Criteria
(Colors: blue, gray and white.)

NATIONAL SANITATION FOUNDATION

STANDARD NO. 1

SODA FOUNTAIN AND LUNCHEONETTE EQUIPMENT

Prepared By
THE JOINT COMMITTEE ON FOOD EQUIPMENT STANDARDS

Originally Adopted October 1952
Reviewed & Revised April 1969

THE NATIONAL SANITATION FOUNDATION
HEADQUARTERS

2355 West Stadium Boulevard
Ann Arbor, Michigan

Price: $1.00

This is the first in a series of nationally uniform sanitation standards established by the National Sanitation Foundation. Subsequent to Standard No. 1, the following were developed:

Standard No.	2	Food Service Equipment
Standard No.	3	Spray-Type Dishwashing Machines (Includes Dish and Glass Washing Equipment)
Standard No.	4	Commercial Cooking and Warming Equipment
Standard No.	5	Commercial Hot Water Generating Equipment
Standard No.	6	Dispensing Freezers
Standard No.	7	Food Service Refrigerators and Storage Freezers
Standard No.	8	Commercial Powered Food Preparation Equipment
Standard No.	9	Diatomite Type Filters for Swimming Pools
Standard No.	10	Sand Type Filters for Swimming Pools
Standard No.	11	Recessed Automatic Surface Skimmers for Swimming Pools
Standard No.	12	Automatic Ice-Making Equipment
Standard No.	14	Thermoplastic Materials, Pipe, Fittings, Valves, Traps and Joining Materials
Standard No.	15	Thermoset Plastic Pipe, Fittings, Valves, Tanks, Appurtenances, Joining Materials and Thermoset Plastic Coatings for Use in Potable Water Supply Systems
Standard No.	16	Film Badge Services
Standard No.	17	Centrifugal Pumps for Swimming Pools
Standard No.	18	Manual Food and Beverage Dispensing Equipment
Standard No.	19	Adjustable Output Rate Chemical Feeding Equipment for Swimming Pools
Standard No.	20	Commercial Bulk Milk Dispensing Equipment and Appurtenances
Standard No.	21	Thermoplastic Refuse Containers
Standard No.	22	Swimming Pool Water Treatment Chemicals and/or Processes
Standard No.	23	Watercraft Sewage Disposal Devices
Standard No.	24	Plumbing System Components for Mobile Homes and Recreational Vehicles.
Standard No.	25	Vending Machines for Food and Beverages
Criteria C-2		Evaluation of Special Equipment and/or Devices
Criteria C-4		Reinforced Plastic Tanks and/or Plastic Appurtenances for Water Softening
Criteria C-5		Special Criteria for Cartridge Type Drinking Water Filters

Criteria C-6	Basic Criteria for the Construction of Continuous Cloth Towel Dispensers
Criteria C-7	Plastic Lined Asbestos-Cement Pipe and Couplings for Sewers
Criteria C-8	Pitless Well Adapters

The National Sanitation Foundation

PURPOSE AND ORGANIZATION

The Foundation—popularly referred to as NSF—is a nonofficial and noncommercial agency. It is incorporated under the laws of Michigan as a not-for-profit organization devoted to research, education, and service. It seeks to solve problems involving man and his environment. It wishes to promote man's health and enrich the quality of life through conserving and improving that environment. Its fundamental principle of operation is to serve as a neutral medium in which business and industry, official regulatory agencies, and the public come together to deal with problems involving products, equipment, procedures, and services related to health and the environment.

The Foundation is perhaps best known for its role in the developing of standards and criteria for equipment, products, and services that bear upon health. The *nSf SEAL* is widely recognized as a sign that the article to which it is affixed complies with public health requirements. The Foundation early in its existence established its own testing laboratory as a subsidiary corporation. This laboratory conducts research; tests and evaluates equipment, products, and services for compliance with NSF standards and criteria; and grants and controls the use of the *nSf SEAL*.

A brochure is available discussing in some detail the origin, philosophy, and growth of the Foundation. It describes the way in which distinguished leaders from business, industry, public health, and related professions give generously of their time and talent in helping achieve NSF objectives. It reviews current programs, lists current standards and criteria, and outlines the procedures and requirements of the *nSf SEAL* program. The brochure is entitled, "In Quest of Environmental Quality." A copy will be supplied upon request.

PREFACE

What is the measure of quality? Does quality reside in the basic material of an article or in the way in which the article is fabricated? Or is quality measured, perhaps, by the excellence with which a thing serves, or by the pride with which it is regarded by its possessor? The issue has endured the centuries, and it will continue to fling a challenge for tomorrow.

Man cares about the quality of his environment. He is aware of the influence exerted by food, water, air, land, and shelter upon his well-being—influences which bear upon health, economic livelihood, and general enjoyment. He expects of society a form of protection which is dependable but which yet imposes minimal restraints upon his freedom to achieve his own wants. Quality therefore derives from values which may be highly subjective and, from a materials standpoint, extremely complex.

The National Sanitation Foundation assumes that where there is a will there is a way. Quality **can** be attained. Cost of attainment **can** be reasonable. Multiple needs **can** be reconciled and satisfied. Hence the employment by NSF of an operational methodology to bring together all parties at interest—business and industry, regulatory agencies at all levels of government, professional and technical organizations, and consumer representatives—to achieve understanding with each other of the requirements necessary to assure agreed upon quality objectives. From such understanding a definition of appropriate standards emerges. As the process creates mutual confidence between the parties at interest, such confidence is secondarily communicated to associates at home, in business, industry, and government. Acceptance of the new standard is attained. Progress is extended in achieving uniformity of requirements for equipment construction, maintenance, and operating practice.

But some may contend that standardization is detrimental, restrictive, and inhibiting to free enterprise; that it stifles innovative use of materials and methods. Again, however, a basic tenet of NSF philosophy governs. Standards and criteria against which equipment or processes are to be evaluated must be couched in terms of **performance.** Alternative materials and methods of fabrication are permissible so long as the specified results in ultimate performance are attained. Construction specifications are utilized as may be necessary to achieve performance objectives. Testing and evaluation, then, are carried out

under conditions which reflect actual use situations. Final acceptance requires unequivocal answer to the question, "Does it perform as specified under the applicable standard?" The pronouncement can only be "pass" or "fail." Equipment or materials which bear the **nSf SEAL** assure that they conform with applicable standards as determined by a testing program rigorously and objectively administered.

The National Sanitation Foundation continues to be in debt to those who represent the multiple interests that join in developing the standards, promoting support of the program, and sharing in the surveillance of compliance in the field. Special thanks is extended to the Joint Committee on and the related Industry Advisory Committee for the generous contribution of time and knowledge devoted to this Standard Number.

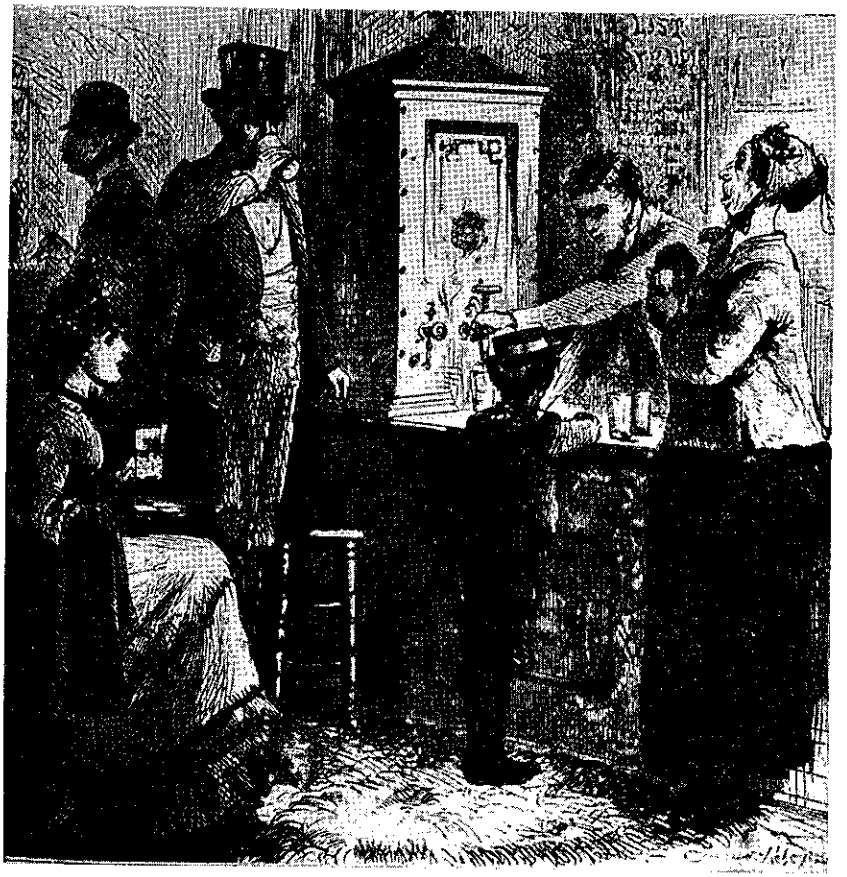
A quality environment is our objective. Such quality can be measured. We can attain it.

Robert M. Brown, President
National Sanitation Foundation

CONTENTS

INTRODUCTION

There is romance in the story of the soda fountain industry, the beginning of which dates back to 1808. This is true because its founders could have had no conception of what was ahead and because of the manner in which the industry reached maturity.



From an Article on Soda Water in HARPER'S Monthly in 1872

Soda water originated as a medicinal "mineral" water and became a beverage more or less by accident; ice cream was added as an experiment, and it took more than a century to establish food as a part of soda fountain service.

Although the importance of these events was probably not apparent to those who participated in them, the vantage ground of perspec-

tive enables us to classify the development of the industry in the United States into six periods, or eras, as follows:

1808—Birth. Mineral water sold as an aid to health.
1838—Becomes a beverage by the addition of flavoring syrup.
1874—Ice Cream becomes an adjunct.
1903—Front Counter Service with syrup pumps introduced.
1924—Economical mechanical refrigeration appears.
1928—Luncheonette makes its appearance.

We are now in the midst of a seventh era in which the soda fountain attracts a constantly growing clientele. There are some 120,000 soda fountains in the United States, doing an estimated annual volume of more than 2 billion dollars. While the fountain has lost none of its popularity as a refreshment center, the serving of food has become one of its most important functions.

Drug stores, 5 & 10c stores, department stores and exclusive luncheonettes are catering to thirst and appetite with beverages, ice cream and light foods, served quickly and at moderate prices. Fountains are found in public buildings, on liners, railroad trains and warships, with airplanes "just around the corner". Of all the meals eaten away from home, at least twenty-five per cent are served by soda fountains.

The soda fountain has become a mecca for the American public—a truly democratic institution which beckons and welcomes all types—all ages.

Because the fountain has become such an important factor in our American way of life, manufacturers who subscribe to this program, realizing their responsibilities, have joined forces with the National Sanitation Foundation in an effort to safeguard public health by setting up equipment manufacturing standards, designed to facilitate sanitary operations.

This cooperative effort began in 1945, when the Soda Fountain Manufacturers Association was organized, and has culminated in the acceptance of the standards covered by these specifications.

National Sanitation Foundation

STANDARD NO. 1

Relating To

SODA FOUNTAIN AND LUNCHEONETTE EQUIPMENT

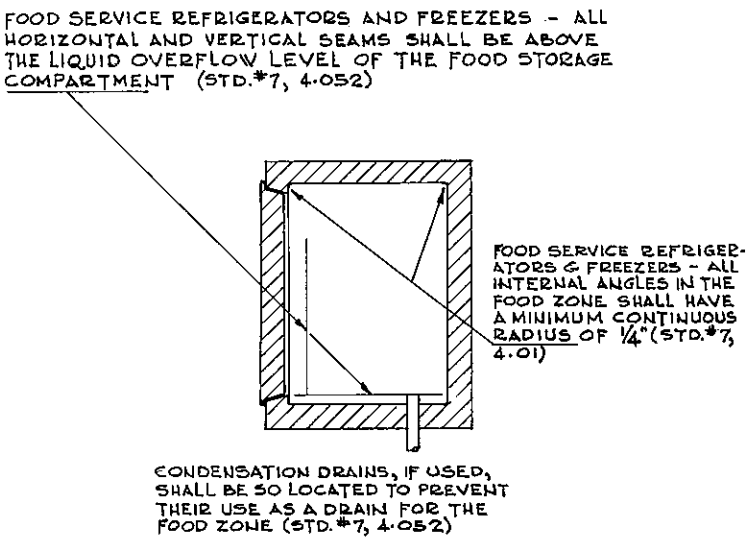
AND APPURTENANCES

Soda Fountain & Luncheonette

Section 1. GENERAL

1.00 COVERAGE: This Standard covers equipment commonly known to the trade as soda fountain and luncheonette equipment. It includes creamers and bobtails, cafeteria units, hot and cold food units, and other food handling and processing equipment, such as tables of all kinds and their component parts, counters, shelves, sinks and hoods. It includes the basic principles of design, construction and performance as is necessary to achieve easy cleanability, food protection and freedom from harborages which are applicable to equipment commonly known as soda fountain and luncheonette equipment and their component parts or appurtenances. This Standard shall serve as a guide and in no way shall restrict new design, provided the design does not fall below the minimum specifications of this Standard.

1.01 MINIMUM REQUIREMENTS: These are minimum requirements and variations may be approved when they tend to make units more resistant to wear, corrosion, or more easily cleanable. Units which have components, or parts, which are covered under existing NSF Standards or Criteria, shall comply with the applicable requirements thereof.



1.01—Compliance With Other Standards

1.02 ALTERNATE MATERIALS: Whenever specific materials are mentioned, it is understood that the use of materials proven to be equally satisfactory from the standpoint of sanitation and protection of food is acceptable.

1.03 STANDARD REVIEW: A complete review of this Standard shall be conducted at intervals of not more than three years to determine what changes, deletions or additions if any, are necessary to maintain current and effective requirements consistent with new technology and progress. These reviews shall be conducted by appropriate representatives from the industry, public health and user groups. Final adoption of any revision shall be in accordance with the procedures established by the National Sanitation Foundation Joint Committee on Food Equipment Standards.

Section 2. DEFINITIONS

GENERAL:

2.00 ACCESSIBLE: Accessible shall mean capable of being exposed for proper and thorough cleaning and inspection with the use of only simple tools such as a screw driver, pliers, or open-end wrench.

2.01 ACCESSIBLE, READILY: Readily accessible shall mean exposed or capable of being exposed without the use of tools, for proper and thorough cleaning and visual inspection.

2.02 CLEANABLE, READILY (OR EASILY): Readily (or easily) cleanable shall mean readily accessible and of such material, finish and so fabricated that soil may be effectively removed by normal cleaning methods.

2.03 CLEANING: The term cleaning shall mean the physical removal of residue of dirt, dust, foreign material or other soiling ingredients or materials.

2.04 CLOSED: Spaces required to be "closed" shall have no openings large enough for the entrance of insects or rodents. An opening of 1/32 inch or less, shall be considered closed.

2.05 CORROSION-RESISTANT: "Corrosion-resistant" materials are those which maintain their original surface characteristics under the prolonged influence of the foods to be contacted, the normal use of cleaning compounds and sanitizing solutions, and other conditions of the use environment.

2.06 FOOD: Shall mean any raw, cooked, or processed edible substance, beverage, or ingredient used or intended for use or for sale in whole or in part for human consumption.

2.07 FROZEN DESSERTS: A frozen dessert is any frozen or partially frozen combination of two or more of the following: milk or milk products, eggs or egg products, sugars, water, fruit or fruit juices, candy, nut meats, or other harmless and wholesome food products, flavors, color, or harmless stabilizer, and shall be deemed to include ice cream, frozen custard, ice milk, milk sherbet, ices, and other similar products.

2.08 REMOVABLE: Removable shall mean capable of being taken away from the main unit with the use of only simple tools, such as a screw driver, pliers, or open-end wrench.

2.09 REMOVABLE, READILY (OR EASILY): Readily (or easily) removable shall mean capable of being taken away from the main unit without the use of tools.

2.10 SANITIZING: Sanitizing shall mean the bactericidal treatment of clean surfaces of equipment and utensils by a process which has been proven effective.

2.11 SEALED: Spaces required to be "sealed" shall have no openings that will permit the entry of insects, rodents, dirt or moisture seepage.

2.12 SMOOTH: The word "smooth" is used to define a surface free of pits and inclusions and having a cleanability equal to the following:

Food Zone: Number 3 (100 grit) finish on Stainless Steel.

Splash and Non-Food Zone: Commercial grade hot rolled steel free of visible scale.

2.13 TOXIC: The word "toxic" shall refer to the adverse physiological effect to man.

2.14 ZONES (CONTACT SURFACES):

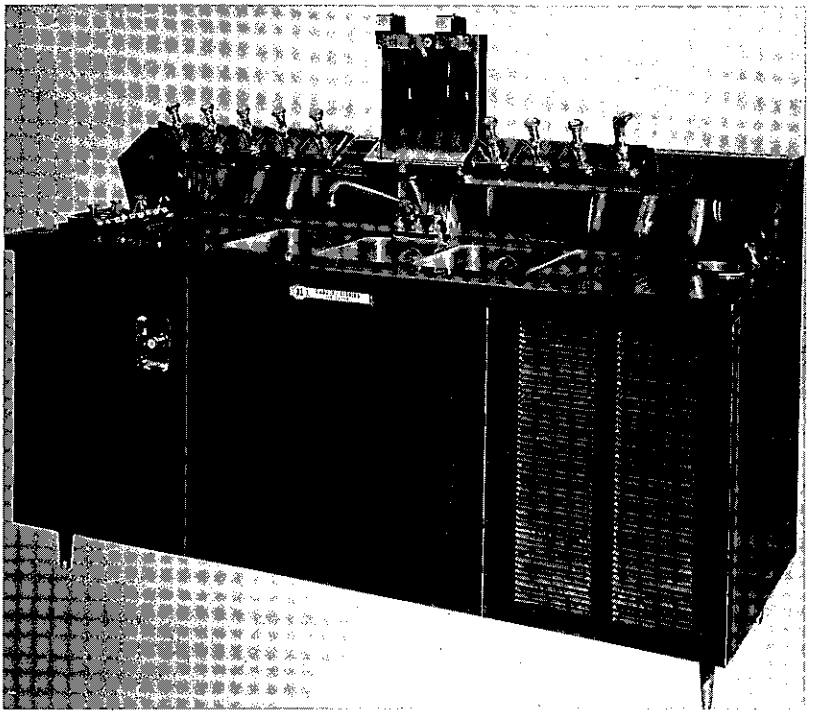
2.141 FOOD ZONE: The term "food zone" or "food contact surface" includes those surfaces of the equipment with which the food normally comes in contact, and those surfaces with which the food is likely, in normal operation, to come into contact and drain back onto surfaces normally in contact with the food or into the food.

2.142 SPLASH ZONE: The term "splash zone" or "splash contact surface" shall mean those surfaces, other than food contact surfaces, which are subject to routine splash, spillage, and contamination during normal use.

2.143 NON-FOOD ZONE: The term "non-food zone" or "Non-food contact surface" shall mean all exposed surfaces not in the food and splash zones.

SPECIFIC ITEMS:

2.15 BOBTAIL: A unit designed for the dispensing of carbonated beverages and milk drinks but having no ice cream storage. Components include draft arms, water coolers, syrup containers and cold storage compartments. These may be with or without integral sink section.



Bobtail Unit

2.16 CREAMER: (Also known as a Cooler Box or Fountain Unit.) This term is used to describe the unit of a soda fountain which has space for storing frozen desserts, plus facilities for cooling and serving soda water. Built with or without a sink section as an integral part of the unit.

2.17 DIPPER WELL: A dipper well is a container or receptacle which is equipped with running water and a drain and is intended for the storage of frozen dessert dippers.

2.18 DISPLAY CASE: Any enclosed case used for the purpose of displaying and/or dispensing unpackaged food is considered to be a display case.

2.19 ICE CREAM CABINET: A mechanically refrigerated unit used for storing and dispensing frozen desserts.

NOTE: When an ice cream cabinet is used as an integral part of a soda fountain for the purpose of dispensing frozen desserts or if there is a continuous work surface between a frozen dessert cabinet and other soda fountain units, the assembly shall be considered a soda fountain unit.

2.20 INSET: An inset is a pan or container (intended to contain food) which is used in connection with a hot (wet or dry) or cold display and/or serving section or sandwich unit.

2.21 OVERFLOW: An overflow is a device, the function of which is to maintain a maximum water level.

2.22 RAISED RIM: A raised rim is an elevation around the opening to a food compartment.

2.23: SINK SECTION:

2.231 APRON: The term apron means the facing on the dispenser side of the unit.

2.232 BASIN: Basin is a term which is known in the trade as a sink.

2.233 BASIN OR SINK OUTLETS: Basin or sink outlets serve to drain water from these units to the sewer.

2.234 CORRUGATION: Corrugation is a type of fluted or crimped surface which aids in the draining of water from the surface.

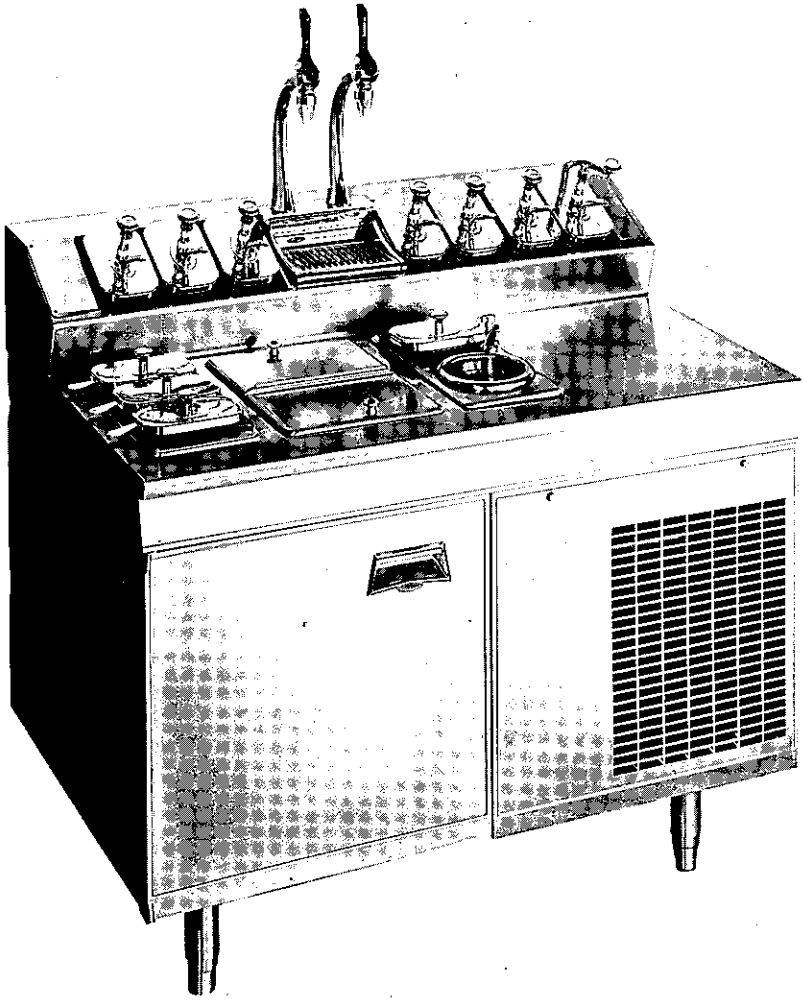
2.24 SODA FOUNTAIN: A generic term referring to a complete unit equipped for the storing and dispensing of frozen desserts and carbonated beverages. Where food also is served, the equipment is referred to as a "Luncheonette Fountain."

2.25 SODA FOUNTAIN—COMPONENT PARTS OF:

2.251 BREAKER STRIP: A breaker strip is a non-conductor which is inserted between the inner and outer liners of refrigerated compartments.

2.252 COOLING COILS: Cooling coils are elongated, spiral coils or similar devices containing soda and plain water, which are in a refrigerated area to cool the liquid in the coils.

2.253 DRAFT ARM: A draft arm is a unit used to dispense soda, plain water or mixed beverages.



Soda Unit Or Fountain Unit

2.254 DRAFT STATIONS: A draft station is an assembly having a drip plate and a drip pan together with draft arms.

2.255 FLASH OR INSTANTANEOUS COOLERS: Flash or instantaneous coolers are mechanically refrigerated units for cooling soda and plain water.

2.256 ICE CREAM COMPARTMENTS: That part of the unit used for the refrigeration and storage of frozen desserts.

2.257 ICE CREAM SLEEVE: An ice cream sleeve is a compartment in which frozen dessert is stored and refrigerated.

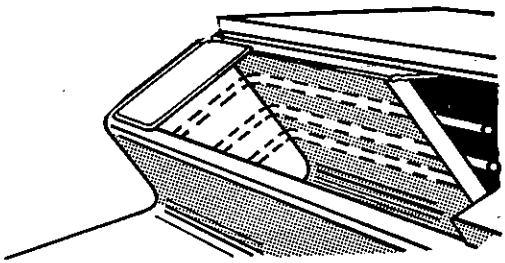
2.2571 LID: A lid is a device used to close access openings.

2.2572 LINING: A lining is the interior surface of a compartment.

2.258 ICE PAN: An ice pan is a container used for the storing of edible ice.

2.26 SPLASH BACK: Splash back is the vertical facing of a unit above the working surface of the unit—designated as "rear" and "end" splash. This area is also known as "flashing" or "splash board."

2.27 SYRUP RAIL: The syrup rail is a refrigerated section of a creamer or bobtail where syrup pumps and jars are stored.



2.27 SYRUP RAIL

2.28 URN STAND: The term "urn stand" shall mean a stand, fixed, portable, or wheeled, intended to support a coffee, tea or water urn. The term shall not include tables or stands on which small self-contained coffee brewers are mounted.

2.29 WATER BATH: The water bath is a body of water used as a secondary cooling medium in the cooling of plain and soda water.

2:30 WHEELED EQUIPMENT: Wheeled equipment is that which is placed on casters or wheels and can be easily moved for auxiliary food processing or service, but shall not include licensed motor vehicles.

Section 3. MATERIALS

3.00 GENERAL: Only such materials shall be used in the construction of soda fountain and luncheonette equipment and appurtenances, as will withstand wear, penetration of vermin, the corrosive action of foods or beverages, cleaning compounds and such other elements as may be found in the use environment. Such materials shall not impart an odor, color, taste or toxic material to the food.

3.01 FOOD CONTACT SURFACES: Surface materials in the food zone shall be smooth, corrosion-resistant, non-toxic,* stable, and non-absorbent under use conditions and shall not impart an odor, color, or taste nor contribute to the adulteration of food.

3.02 SPLASH CONTACT SURFACES: Splash contact surfaces shall be of smooth, easily cleanable and corrosion-resistant materials, or they shall be rendered corrosion-resistant with a material which is non-cracking, non-chipping and non-spalling. Paint shall not be used, except as provided in Item 4.14 and 5.08.

3.03 NON-FOOD CONTACT SURFACES: Non-food contact surfaces shall be smooth and of corrosion-resistant material or shall be rendered corrosion-resistant or painted. Lead base paints shall not be used. Parts of the equipment directly over and adjacent to the food zone and parts having both food contact and non-food contact surfaces shall have the non-food contact surfaces rendered corrosion-resistant and, if coated, the coating shall be of a non-cracking, non-chipping and non-spalling type.**

3.04 SOLDER: Solder in the food zone shall conform to the following:

3.041 SOFT SOLDER: Soft solder shall be of such formulation as to be non-toxic under use conditions. It shall contain at least 50% tin; shall contain no more lead than is necessary under good manufacturing practice; and shall, consistent with good industrial practice in the refining of its constituent elements, be free of cadmium, antimony, bismuth and other toxic materials.

*The requirements of the Federal Food, Drug and Cosmetics Act as amended, shall be used as a general guide.

**Reference test procedures.

3.042 HARD SOLDER: Hard solder (silver solder) shall be of such formulation as to be non-toxic under use conditions. It shall be corrosion-resistant and shall, consistent with good industrial practice in the refining of its constituent elements, be free of cadmium, antimony, bismuth and other toxic materials.

3.05 PLASTIC RESIN SYSTEMS: Plastic resin systems may be used provided they meet the applicable requirements of Items 3.00, 3.01, 3.02 and 3.03.

3.06 WELDING: When welded seams are used, the weld area and deposited weld material shall be as corrosion-resistant as the parent material.

3.07 GASKETS AND PACKINGS: Gaskets and packings shall be made of materials, such as resilient rubber, rubber-like materials, or plastic. Such materials shall be non-toxic, stable, odor free, non-absorbent and shall be unaffected by exposure to foods and cleaning compounds.

3.08 BREAKER STRIPS: Exposed breaker strips shall be made of a material which is non-toxic, corrosion-resistant, odor free, non-absorbent and stable.

3.09 SOUND DAMPING MATERIALS: Sound damping materials shall, when applied, comply with the requirements of the zone in which used. The material shall not spall, flake or blister. Non-hardening types are not acceptable.

3.10 SCRAPPING BLOCKS: Scrapping blocks in soiled dish tables shall be of a resilient, grease-resistant material.

3.11 WOOD-TOP BAKERS TABLES AND CUTTING BOARDS: Wood-top bakers tables and cutting boards shall be of wood, having minute anatomy of between 4 and 13 vessels per square millimeter with a vessel diameter between 180 and 250 microns. The wood shall, in addition, be non-toxic and shall not impart odor, color or taste nor contribute to the adulteration of the foods in contact therewith. The wood shall be kiln dried to 6–8% moisture content by weight after conditioning to remove stresses, case hardening and other drying defects, and shall have a weight per cubic foot of not less than 43.3 pounds. Further, the wood shall have sufficient hardness to withstand the imbedding of a 0.444 inch ball to not more than ½ of its diameter by a force of 1200 pounds and shall have a shearing strength of at least 1800 p.s.i. parallel to the grain.

3.12 DRAWERS: Drawers and containers intended only for utensil storage in soda fountain and luncheonette equipment, shall meet the material requirements of Item 3.02. Drawers having food contact surfaces shall meet the requirements of Item 3.01.

3.13 PAINT: Lead base paint shall not be used.

Section 4. DESIGN AND CONSTRUCTION

FOOD ZONE:

4.00 GENERAL DESIGN AND CONSTRUCTION: Soda fountain and luncheonette equipment and appurtenances shall be designed and constructed in such a manner as to exclude from the food zone such vermin, dust, dirt, splash and spillage as may be encountered under the intended use conditions; and shall be easily cleaned, maintained and serviced.

4.01 CLEANABILITY: All food contact surfaces shall be readily accessible and easily cleanable either in an assembled position or when removed. Demountable parts shall be readily removable.

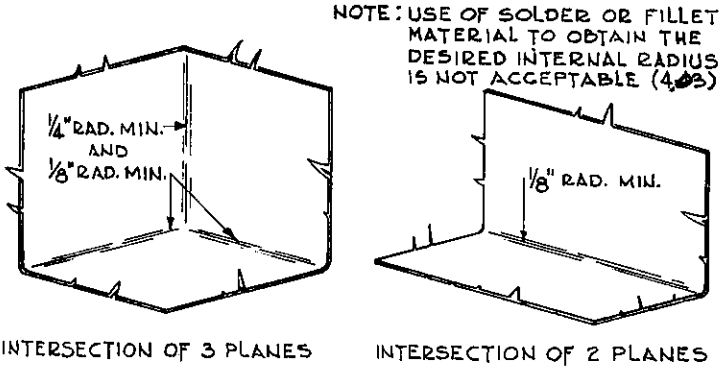
4.011 In equipment of such design that food contact surfaces are not readily removable and in-place cleaning is intended, tubing, pipe, fittings, and valves shall be so arranged that cleaning and sanitizing solutions can be circulated under pressure throughout the fixed system. Such solutions shall contact all interior surfaces. The system shall be self-draining or otherwise completely evacuated. The manufacturer's recommended cleaning procedures shall result in thorough cleaning of the equipment. Soda fountain and luncheonette equipment and appurtenances designed for cleaning-in-place shall have a section of the line cleaned-in-place accessible for inspectional purposes or other acceptable inspectional method shall be provided.

4.02 FUNCTION: Soda fountain and luncheonette equipment and appurtenances shall be designed and constructed so that ingredient(s) or food(s) can be added and the finished food dispensed, removed or served in a sanitary manner.

4.03 CORNERS OR ANGLES—INTERNAL: All internal angles or corners (of two or more planes at 110° or less) shall have rounded corners and rounded angles wherever it will make cleaning easier. Solder may not be used to effect the desired radius, except as provided in Items 5.111, 5.14 and 5.181. All internal corners, where exposed to unpackaged foods, shall conform with the following:

4.031 An internal angle formed by the intersection of two planes shall have a minimum continuous and smooth radius of ⅛ inch.

4.032 An internal corner formed by the intersection of three planes (at 110° or less) shall have a minimum continuous and smooth radius of ¼ inch for vertical or horizontal intersection, the alternate intersections being constructed with a minimum continuous and smooth radius of ⅛ inch on all items of equipment used for unpackaged food.



4.03—Corners or Angles—Internal

4.033 The following intersections shall be exempt from the provisions of Items 4.031 & 4.032:

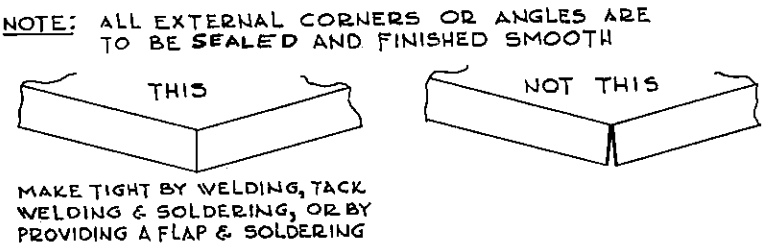
a. The juncture between the side walls and ceiling of the liner of glass front refrigerated short term display cases.

b. The juncture between the walls of the base and the ceiling of the liner of backbar, undercounter equipment such as soda fountains, sandwich units, creamers and other refrigerated units.

c. The juncture between a top mounted refrigerated display case and the refrigerated base.

4.04 INTERNAL CORNERS OR ANGLES—OTHER THAN METAL: For materials other than metal, the radii specified in 4.031 and 4.032 shall be effected by use of parent material or by a material which has been proven to be so bonded and otherwise equal, or better than the parent material.

4.05 CORNERS OR ANGLES—EXTERNAL: All exposed external angles and corners are to be sealed and smooth.



4.05—Corners or Angles—External

4.06 SOLDERING: Whenever solder is used, it shall be securely bonded to the metal so that it will not crack or chip off and the surface shall be smoothed. Flux and catalytic material shall be neutralized and removed.

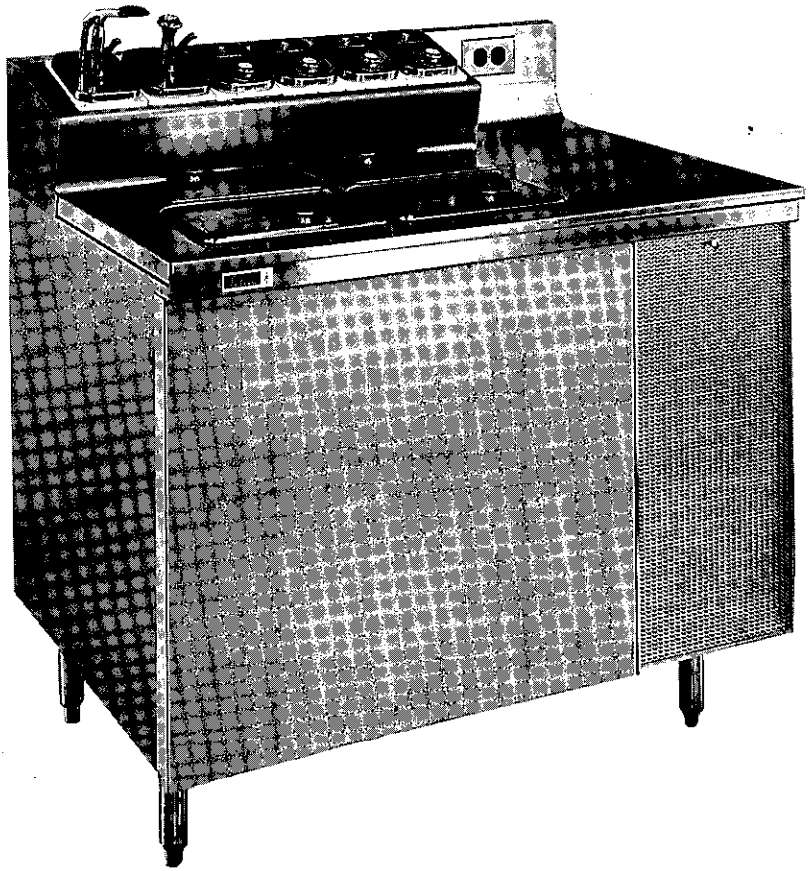
4.061 The use of "Soft Solder" shall be limited to joining metal or sealing structurally sound seams between abutting metal surfaces.

4.07 WELDING: Welded areas in surfaces requiring routine cleaning as in sinks and in surfaces in contact with food shall be smooth.

4.08 JOINTS AND SEAMS: All joints and seams in the food zone shall be sealed and shall be as smooth as the surfaces being joined. Wherever feasible and practical, equipment or parts in the food zone shall be stamped, extruded, formed or cast in one piece.

4.09 FASTENING METHODS: Exposed threads; screw, bolt and rivet heads; nuts and studs shall be eliminated from food contact surfaces, provided, however, the use of low profile type (Brazier head) rivets, properly affixed and without open joints and seams may be used to attach handles to pots and pans.

4.10 WORKED SURFACES: Food contact surfaces which during the course of fabrication are so worked as to reduce their corrosion-resistant characteristics, shall receive such additional treatment as is necessary to render, or return, them to a corrosion-resistant state.



Fountainette

SPLASH AND NON-FOOD CONTACT SURFACES:

4.11 GENERAL DESIGN AND CONSTRUCTION: Soda fountain and luncheonette equipment and appurtenances shall be designed and constructed in such a manner as to minimize the retention of moisture and dust, the shelter of vermin and dirt, and to facilitate inspection, servicing, maintenance and cleaning.

4.12 JOINTS AND SEAMS: In the splash zone, all joints and seams shall be sealed and made smooth. Joints shall be made in such a manner as to eliminate dirt-catching horizontal ledges. All joints and seams in the non-food zone shall, where exposed to seepage and condensation, be sealed and made smooth.

4.13 FASTENING METHODS: In the non-food zone, exposed threads, projecting screws and studs shall be used only when it has been demonstrated that other fastening methods are impractical and they shall be eliminated from the Splash Contact Surfaces. Exposed rivet, screw or bolt heads in the splash zone shall be of low profile type such as brazier or modified brazier rivets or pan and oval head screws and bolts respectively.

4.131 INTERIOR FASTENINGS: In areas subject to cleaning, interior fastenings shall be accomplished in such a manner as to minimize projections, ledges and recesses.

4.14 PAINT: Paint is a satisfactory finish for normally dry surfaces.

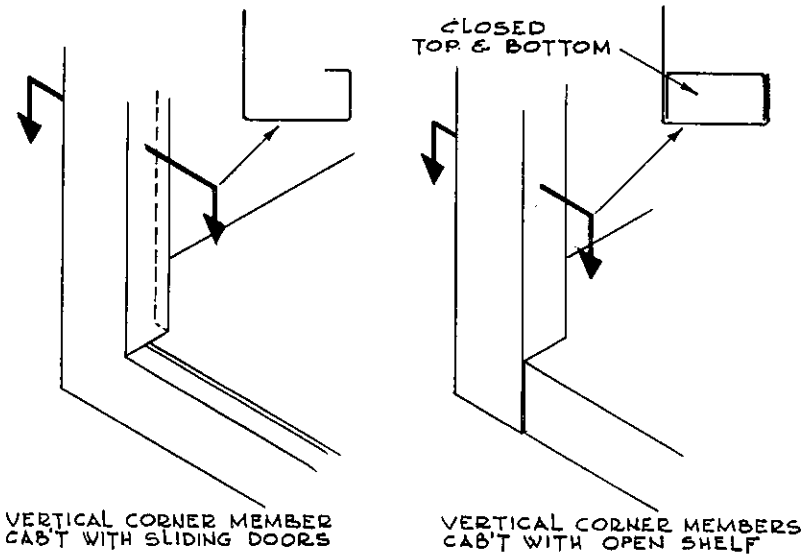
4.15 SOLDERING: Whenever solder is used, it shall be securely bonded to the metal so that it will not crack or chip off and the surface shall be smoothed. Flux and catalytic material shall be neutralized and removed.

GENERAL:

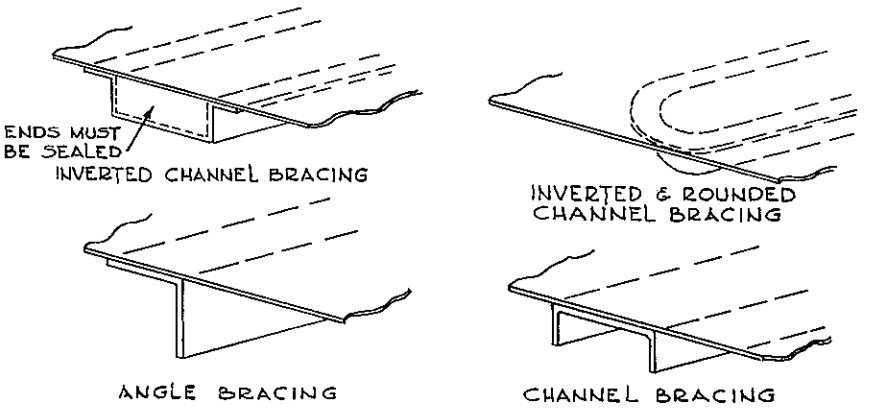
4.16 REINFORCING AND FRAMING: Reinforcing and framing members not totally enclosed, or within walls, are to be placed in such a manner as to be easy to clean. All framing and reinforcing members shall be so placed as to eliminate harborage for vermin. The ends of all hollow sections of reinforcing and framing members shall be sealed. Horizontal angle reinforcing and gussets shall not be placed where food or garbage may accumulate thereon. Where angles are used horizontally they shall have one leg turned down wherever the nature of the equipment permits, or shall be formed integral with the sides as for use with removable shelves or for drawer slides. All vertical channel sections shall be either completely closed or open to the floor.

4.17 FIXED PANELS: Where fixed panels are applied to the outside or inside or set into angle or other reinforced body or counter frames, the method of fastening shall be such as to minimize projections and openings.

4.18 INSPECTION AND MAINTENANCE PANELS: Where necessary for inspection and maintenance, easily removable panels shall be provided. They shall be of adequate size to serve the purpose intended, but otherwise confined in size and so constructed that one person can handle them. Removable panels shall conform with applicable construction requirements for the zone in which they are to be used.



4.16—Reinforcing & Framing Members Under Tops & Shelving



4.16—Body Construction

4.19 LININGS: Bottoms or gutters of linings in fixtures requiring drainage are to be self-draining.

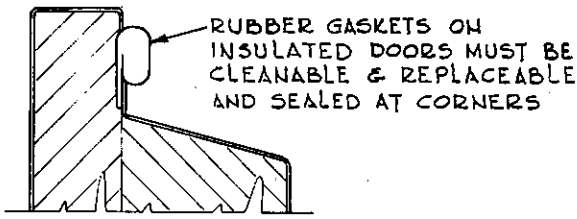
4.20 FINISHING: Painted finishes may be used in the non-food zone where they improve sanitation by preventing oxidation or condensation. Non-wearing surfaces subject to corrosion that require cleaning shall be rendered corrosion-resistant by plating or painting conforming to the applicable requirements of Items 3.00, 3.01, 3.02 and 3.03.

4.21 LIDS, DOORS, COVERS AND HOODS (SPLASH ZONE): Doors and covers shall be manufactured to conform with standard of manufacture for the cabinet proper and shall be sized to fit and close properly. Doors to enclose openings and provide access to interior compartments shall be fabricated in two basic types of construction; that is, single or double panel with or without intermediate insulation. Sliding doors, when used, shall slide freely and be readily removable. Hinges shall be kept to a minimum in the splash zone.

Hinges shall not be used in the splash zone unless they are so designed and constructed as to minimize leakage and drippage. Hinges required in the splash zone shall be constructed to be cleanable.

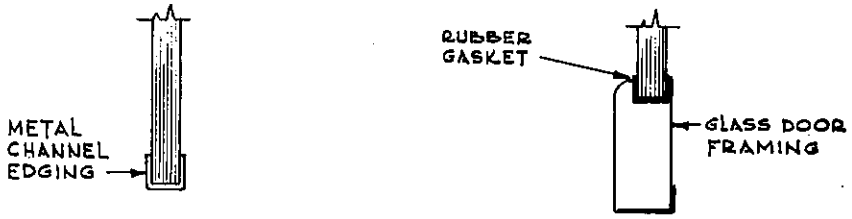
4.211 DOORS—WITHOUT INSULATION: Single panel doors shall be built in such a manner as to minimize the collection of food particles and other foreign matter and preferably without channel sections at the bottom. If channel sections are so used, they shall be constructed so as to be easily cleanable. (See Item 4.16 REINFORCING AND FRAMING) Double panelled doors consisting of face and interior sheets shall be closed around four sides and at the corners.

4.212 DOORS—INSULATED: When gaskets are used on insulated doors, they shall be easily cleanable and replaceable. All hollow sections shall be closed and sealed.



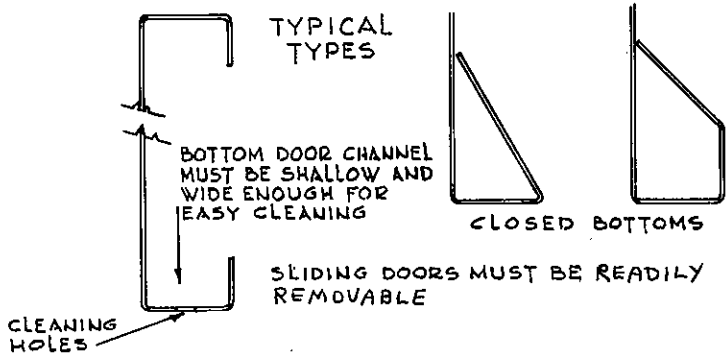
4.212—Insulated Doors

4.213 GLASS DOORS: Exposed edges of glass doors shall be protected against chipping by protective channels or suitable stripping, or non-friable glass shall be used, with edges ground smooth. If protective channels are used, they shall be tight fitting.



4.213—Typical Framing for Glass Sliding Doors

4.22 DOOR TRACKS AND GUIDES: All bottom tracks and guides for doors shall be built in such manner as to minimize the collection of food particles, condensation, spillage and other foreign matter; and shall be so constructed as to be easily cleanable. Deep type bottom channel tracks shall not be used. The following are examples of design features which are in compliance with this requirement.



4.22—Single Panel Doors

4.221 Providing clear open slots, continuous or at intervals.

4.222 Providing clean-out holes at ends of track or guide bottom.

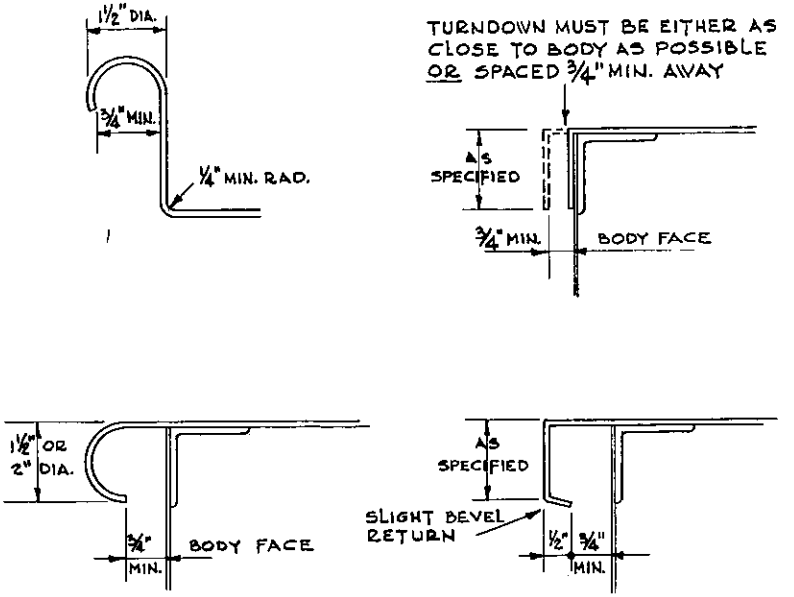
4.223 Stopping tracks or guides at least ½" short of framing at each end.

4.224 Forming tracks or guides integral with interior bottoms and without square corners.

4.225 Providing overhead door suspensions with lower guides which are constructed integral with the bottoms.

4.226 Providing readily removable T strips in channel type bottom tracks.

4.23 EXPOSED EDGES AND NOSINGS: All exposed edges and nosings on horizontal surfaces shall be integral with tops, regardless of profiles, and, where exposed to fingers and cleaning, they shall be made smooth. Nosings shall be open ¾ inch or completely closed against the body of the unit on all sides to prevent the harborage of insects. Where the edges of tops or shelves are flanged down and turned back, the return under-flange shall be less than ½ inch and shall be angled down. The space between the top and the flange shall be not less than ¾ inch, and the space between the sheared edge and the frame angle or cabinet body shall not be less than ¾ inch to provide access for cleaning.

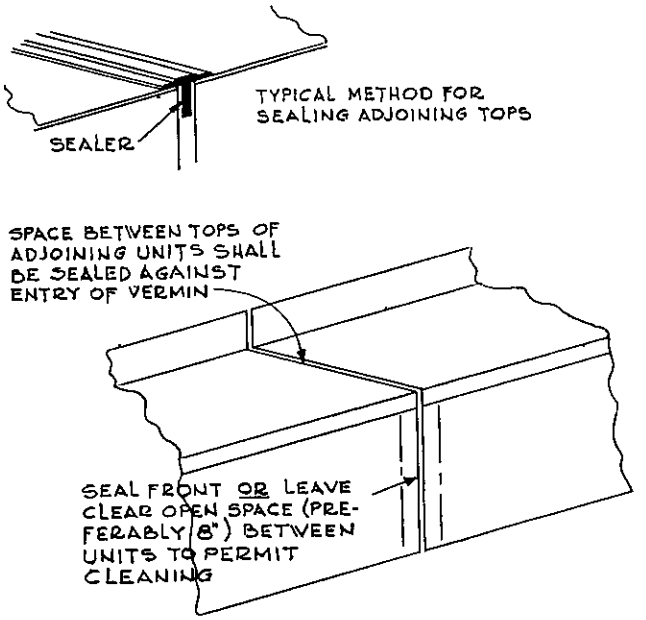


4.23—Exposed Edges & Nosings

4.24 FIELD JOINTS: Where field joints are required, they shall be made sanitary by use of trim strips, welding, soldering, properly designed draw fastening or other methods acceptable under the provisions of Items 1.01 and 1.02. Such joints shall be smooth and sufficiently strong to insure against breaking open from normally anticipated use.

EXPOSED TOPS SHALL BE IN ONE PIECE IF SPECIFIED OR ALL SEAMS SHALL BE FILLED AND MADE SMOOTH.
WHERE TOP BUTTS ADJACENT EQUIPMENT - TOP IS TO HAVE INTEGRAL SPLASHBACK OR RIM - SEE DETAILS 4.21 AND 4.47

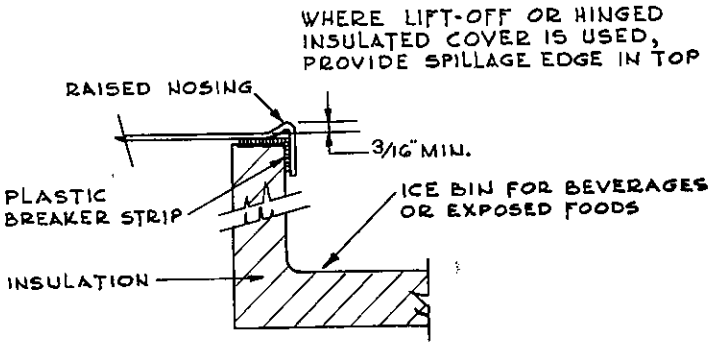
Tops of Counters, Tables & Back Bars



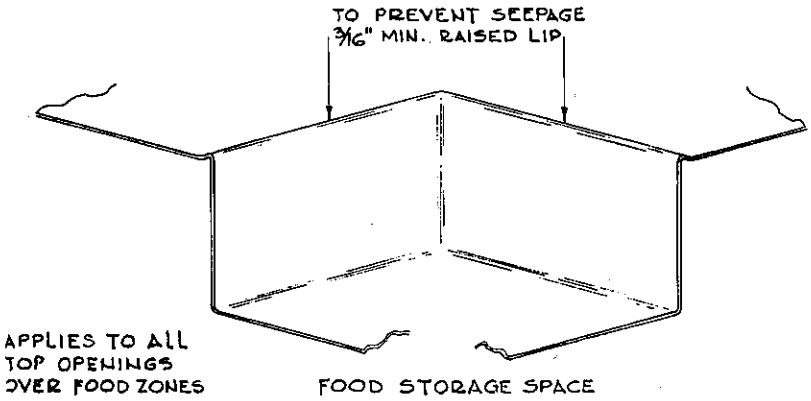
4.24—Trimming & Sealing Openings in Counter Tops & Bodies

4.25 OPENINGS AND RIMS (FOOD ZONE): To prevent seepage, all top openings over food zones shall be protected by a raised rim at least 3/16 inch above the level to which liquids may accumulate.

4.26 OPENINGS TO FOOD ZONES: All openings to food zones shall be provided with covers or other equivalent protection, to prevent contamination of the food. Such covering shall be effected in a manner to prevent seepage, condensation or spillage from entering the food zone or foods stored therein.



4.25—Covers Over Unpackaged Food Compartments or Beverage Ice Bin



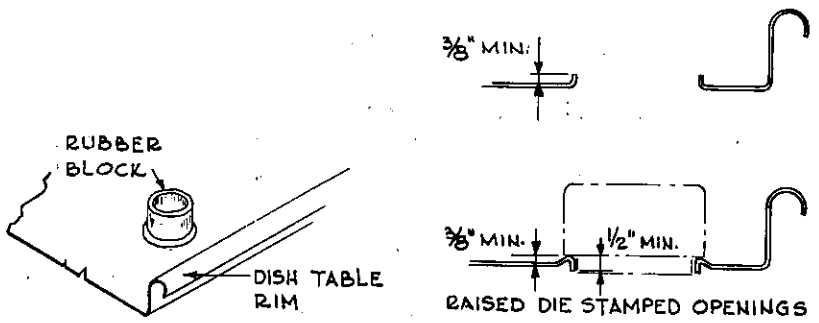
4.25—Openings & Rims—Food Zone

4.261 COVERS AND DOORS: When covers or doors are provided to prevent contamination from reaching the food zone they shall be so designed as to provide a flange which overlaps the opening, and shall be sloped to provide drainage from the cover surface. Any port opening through the covers shall be flanged upward at least 3/16 inch and shall be provided with a cover which overlaps the flange. Covers shall be designed with a sufficient clearance to avoid contact with foods which they cover. All covers are to be readily removable as a unit or in sections. Hinges or pivots shall be designed to be easily cleanable and of simple take apart design and construction. Lid assemblies for ice cream storage compartments shall be free of cracks and

crevices or openings (except for leak-proof and drip-proof hinges and at the joints and seams of the breaker strip) and the lid assembly shall be designed for adequate cleaning and sanitizing. Piano hinges are not permissable in the Food Zone. Sliding or hinged covers, where used, shall be constructed in such a manner as to prevent seepage of liquids, condensation or other foreign materials into the food zone and liquid or solid accumulations on covers from falling into the food zone when the covers are closed or opened. Hood mountings shall be accessible to cleaning, or the mounting shall be easily disassembled for cleaning.

4.262 ENTRY PORTS: All joints and seams where piping, thermometers, equipment, rotary shafts, and other functional parts extend into the food zones shall be closed and sealed at the point of entry, or a properly designed deflecting apron shall be provided.

4.27 OPENINGS TO FOOD WASTE RECEPTACLE: The dish table opening to the garbage receptacle shall have a water tight, turned-down edge extending at least ½ inch below the bottom of the table top, or a raised rim at least ⅜ inch above the surface of the table may be used or both may be provided.



4.27—Opening to Waste Receptacle

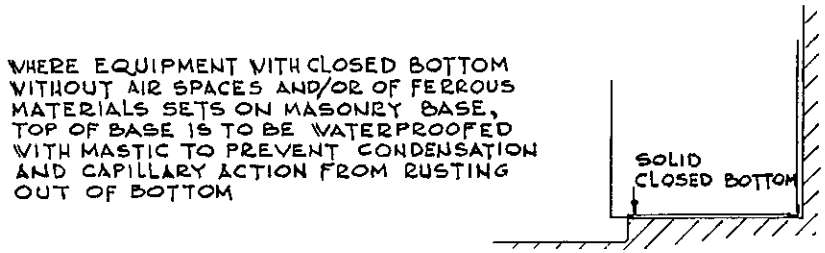
4.28 OPENINGS TO FOOD WASTE GRINDER: Food waste grinder cones shall be installed into table tops by continuous welding and made smooth, or in such a manner as to provide an equally effective joint and seams; such as by use of gaskets or soldering of structurally sound joints and seams.

4.29 HARDWARE: All hardware shall be smooth, fabricated of material with integral or plated finish, easily cleanable, and secured so it can be replaced easily when broken or worn out. Hardware shall not have open seams, recesses or unnecessary projections.

4.30 BREAKER STRIPS: Breaker strips shall be installed in such a manner that debris, food particles, water or seepage do not enter between the breaker strip and the capping and/or the liner. They shall have smooth, easily cleanable surfaces with all rough edges removed.

4.31 PROVISION FOR MOUNTING: All soda fountain and luncheonette equipment shall be designed and constructed with one or more of the following provisions for mounting.

4.311 MOUNTING: The unit shall be designed to be sealed to the floor, a raised base, a counter or shelf, **OR**;



4.311—Masonry Bases Under Equipment

4.312 LEGS: The unit shall be mounted on legs of sufficient height to provide a clear space between the lowest horizontal member of the unit and the floor of not less than 6 inches, **OR**;

4.313 CASTERS, ROLLERS, GLIDERS: The unit shall be mounted on casters, rollers, or gliders of such material, design and construction as to permit its being easily moved by one person. Casters shall be so installed as to be easily cleanable and shall conform to NSF Basic Criteria C-2, **OR**;

4.314 PORTABLE: The unit shall be small enough and light enough to be easily moved by one person and shall have no utility connection; **OR** have a connection that can be easily disconnected without tools; **OR** have a utility connection of sufficient length to permit the unit to be moved for cleaning, **OR**;

4.315 COUNTER AND TABLE UNITS: Equipment, other than portable designed to be placed on counters or tables shall be designed to be sealed to the counter or be mounted on legs of sufficient height to provide a clear space between the lowest horizontal member of the unit and the counter or table top of not less than 4 inches.

4.32 LEGS AND FEET—DESIGN AND CONSTRUCTION: Legs and feet shall be non-absorbent and of sufficient rigidity to provide support with a minimum of cross-bracing and so fastened to the body of the equipment and so shaped at floor or counter contacts to prevent the accumulation of dirt and the harborage of vermin. When the outside dimension of the leg is greater than the outside dimension of the foot by ½ inch or more in the same plane, the foot shall, at minimum adjustment extend 1 inch below the leg. All openings to hollow sections between feet and legs shall be of drip-proof construction with no opening greater than 1/32 inch. All other openings to hollow sections shall be sealed. Legs and feet shall be of simple design, free from embellishments and exposed threads. Gussets, when used, shall be assembled to the equipment in such a manner as to insure easy cleanability and to eliminate insect harborage. The resultant assembly shall have no recessed areas or spaces.*

4.33 KICK PLATES: If kick plates are provided, they shall be built so that they can be readily removed or opened and replaced without the use of tools to permit access to the space beneath the unit for inspection, servicing and cleaning.

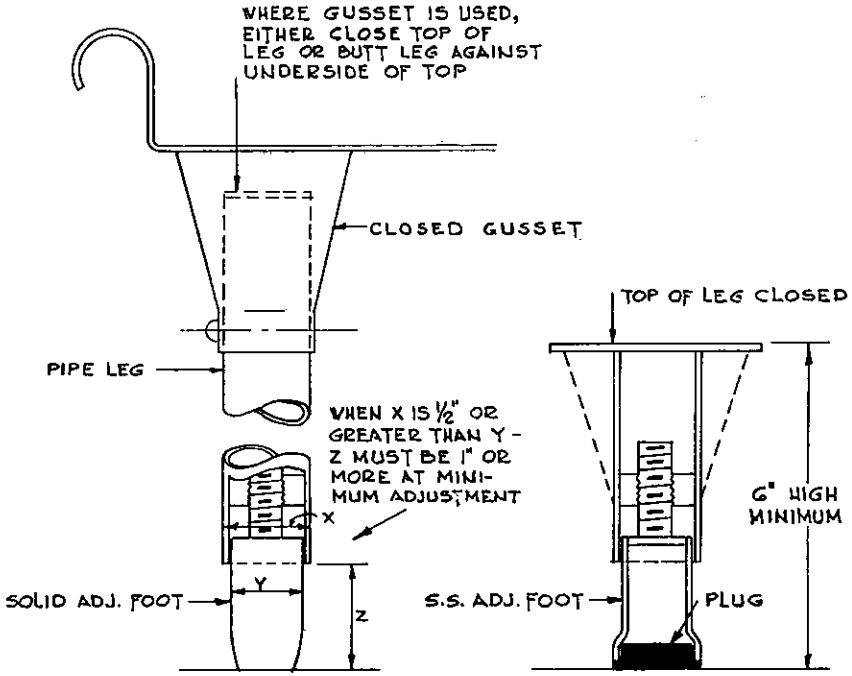
4.34 COUNTER STEPS AND PLATFORM: Closed or hollow counter steps or platforms are not acceptable. Foot rests or rails with open space to floor are acceptable.

4.35 OPEN DISPLAY STANDS AND BRACKETS: Open display stands and brackets shall be fabricated as follows:

4.351 DISPLAY STANDS: Open display stands with or without cross rails shall be of solid or tubular construction. All tubing used in stands shall be of welded or seamless type.

4.352 BRACKETS: All brackets shall be of substantial construction and smooth.

*The intent of this provision is to eliminate the uncleanable areas, generally encountered when open style gussets are used with cylindrical legs.



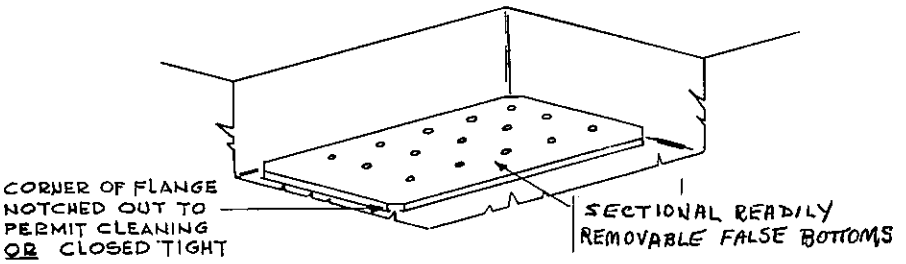
4.32—Legs & Feet

4.36 COUNTER TRAY SLIDES: Counter tray slides shall be constructed in accordance with the general requirements of these specifications and may be of tubular or solid construction in accordance with Item 4.11.

4.37 SHELVING: All shelving, whether fixed or removable, solid or open type, is to be constructed and installed so as to be readily cleanable.

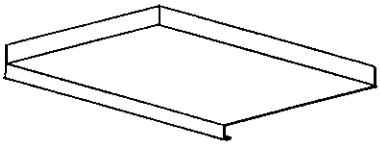
4.371 REMOVABLE SHELVES: Removable shelves shall be readily movable and sized to facilitate their handling by one person. Where shelves are used as removable false bottoms, the flanged corners are to be closed or sufficiently notched open to permit cleaning.

4.372 DIVERTING SHELVES: Shelves intended to prevent seepage or retain splash and/or spillage shall have the back and ends turned up a minimum of 1 inch and corners and seams sealed. Where shelf surfaces are exposed to unpackaged foods they shall conform with Item 4.03. (Corners or Angles-Internal)



4.371—Perforated False Bottom

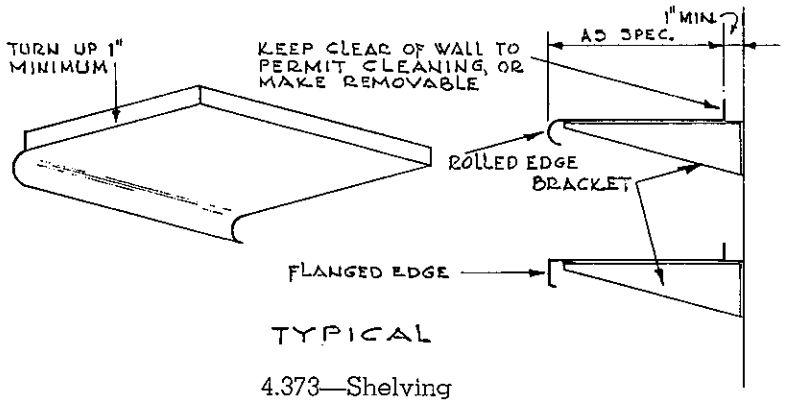
WHERE SHELVES ARE INTENDED TO PREVENT SEEPAGE, AS WHEN SET INTO INTERIORS - BACK & ENDS ARE TO TURN UP 1" MIN. - MADE WITH CLOSED CORNERS



WHERE SHELVES ARE EXPOSED TO UNPACKAGED FOOD - CORNERS ARE TO BE MADE TIGHT BY WELDING, WELDING AND SOLDERING, OR BY PROVIDING A FLAP AND SOLDERING, AND SHALL CONFORM TO ITEM 4.03 - CORNERS & ANGLES - INTERNAL

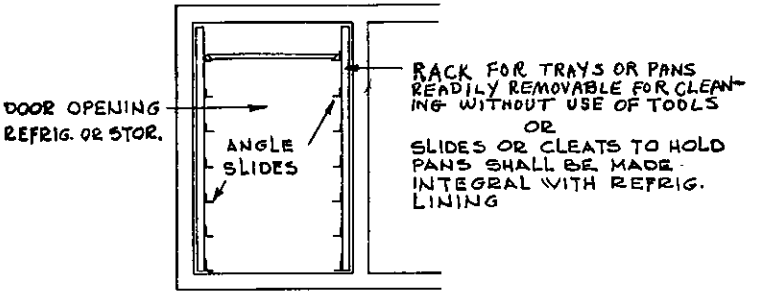
4.372—Diverting Shelves

4.373 INTERIOR FIXED SHELVING: Fixed shelving shall have the back and ends (where against the side panels) turned up a minimum of 1 inch and closed throughout their length, or an open space of 1 inch shall be provided between the back and/or side panels, or the resulting joint and seam shall be sealed.



4.373—Shelving

4.374 SHELF BRACKETS AND SLIDES OR CLEATS: When adjustable shelving is provided, the shelf support brackets and pilasters, if used, shall be readily removable and easily cleanable. Where refrigerator cases and other similar items are designed for trays or pans, the slides or cleats to support them are to be made integral with the lining, or shall be easily removable for cleaning.



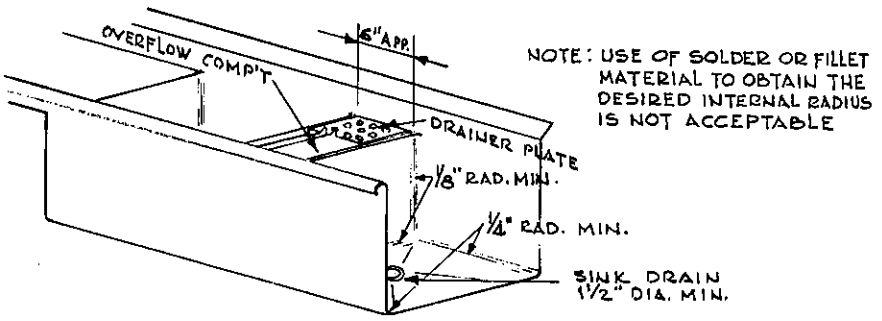
4.374—Slides or Cleats

4.38 WASTE AND WATER FITTINGS: Waste and water fittings attached to the equipment shall comply with the applicable material requirements for the food, splash and non-food zones.

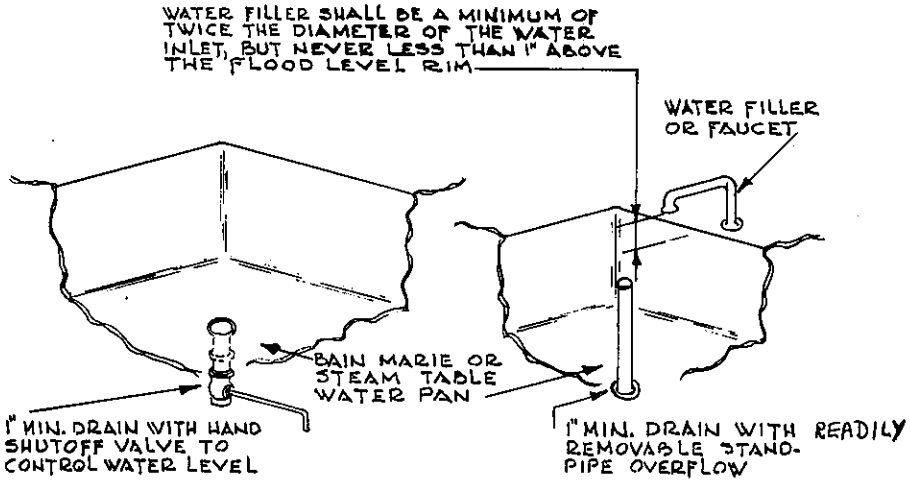
4.381 DRAINS AND OVERFLOWS—SINKS: The use of sink drains which include a removable strainer, with or without remote drainage control, is acceptable. Overflow gutters or drains between two sink compartments, if provided, shall be approximately 6 inches wide, the top being fitted with a removable strainer plate or basket. Drains shall be a minimum of 1½ inches Iron Pipe Size (I.P.S.) except fountain and underbar sink drains which shall be not less than 1 inch. I.P.S.

4.382 DRAINS FOR STEAM TABLES AND BAINS-MARIE (WET TYPE): Drains for water pans shall be a minimum of 1 inch I.P.S. with either a valve or an overflow to control the water level.

4.39 WATER INLETS: Water inlets and/or connections shall be installed in Soda Fountain and Luncheonette Equipment and Appurtenances in compliance with the current edition of the ASA National Plumbing Code (ASA-A40. 8—1955).



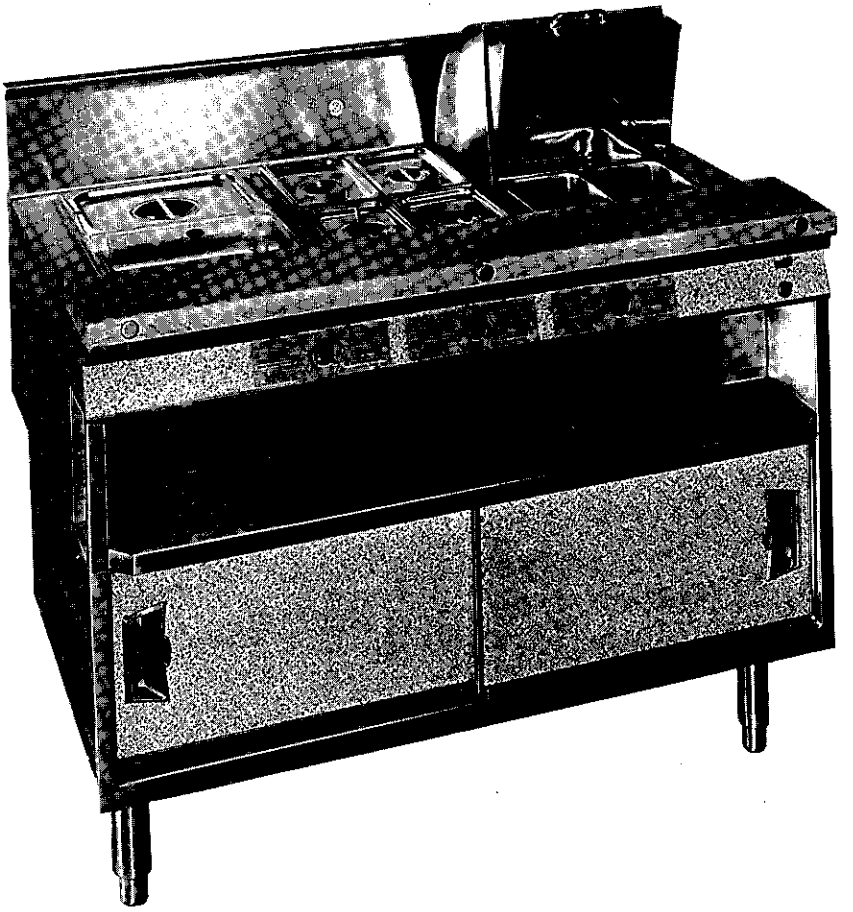
4.381—Table Scuppers & Dump Sinks



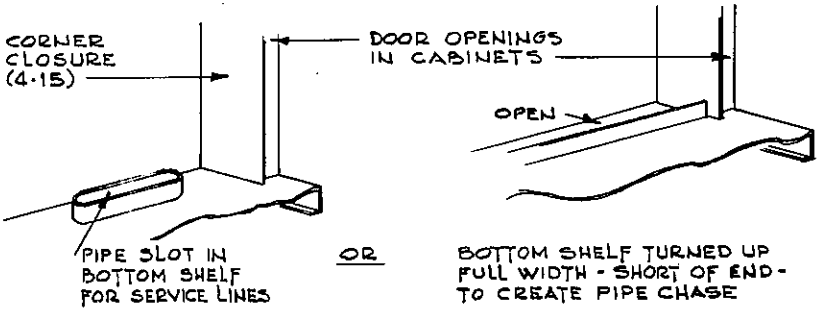
4.382 & 4.39—Drains & Overflows

4.40 PLACEMENT OR DRAINAGE PIPES: All drain connections on equipment shall be so located as to facilitate installation with a minimum of horizontal piping under equipment.

4.41 PIPE CHASES: Pipe chases if provided for vertical gas, stream, electrical, and plumbing lines shall be constructed with removable access panels wherever possible. Pipe chases shall be of such design as not to harbor vermin.



Food Warmer



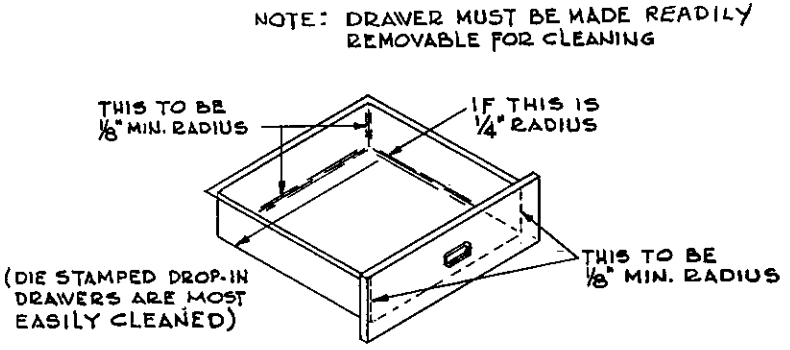
4.41—Pipe Chases

4.411 ENCLOSED SPACES: Enclosed spaces shall be sealed or provided with readily removable access panels. Such removable panels shall be provided wherever condensation is likely to occur within an enclosed space.

Section 5. ITEMS OF SPECIAL SANITARY SIGNIFICANCE

The following items of special sanitary significance shall comply with the applicable provisions of Item 1.00 through 4.411 and in addition, shall conform to the following specific provisions:

5.00 FOOD CONTAINERS AND DRAWERS: Food containers and drawers in the food zone shall be of coved construction (4.031 and 4.032) and shall be smooth and welded or die-stamped.



5.00—Drawers and Bins

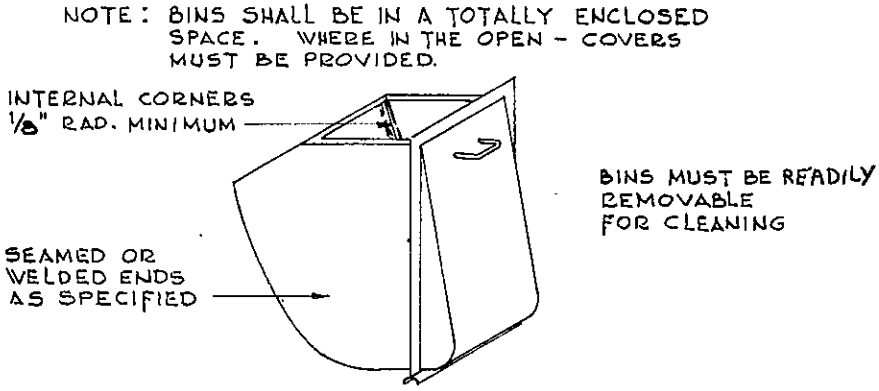
5.01 PANS, POTS, AND UTENSILS: Pans, pots and other utensils shall be constructed to comply with the following specific items:

5.011 Rims of pots and pans shall be easily cleanable. Rolled-type beads shall be closed and sealed.

5.012 Handles and handle assembly parts shall be attached one to another and to the pot, pan or utensil in such a manner as to eliminate inaccessible cleaning areas, recesses and open seams.

5.02 INSETS: All insets or receptacles for unpackaged moist foods and beverages shall be easily removable and easily cleanable. Such containers shall be of open-mouth type, covered, and shall conform to the requirements of Item 5.00 and 5.01.

5.03 DRAWERS AND BINS: All drawers, bins, and drawer carriages shall be made readily removable for cleaning. Bins for food ingredients are to be in a totally enclosed space, or when not enclosed, shall be provided with a tight-fitting cover. Food ingredient containers, including portable food containers, shall have tight-fitting covers and shall comply with Items 3.01, 4.03 and 5.00.



5.03—Tilting Bins

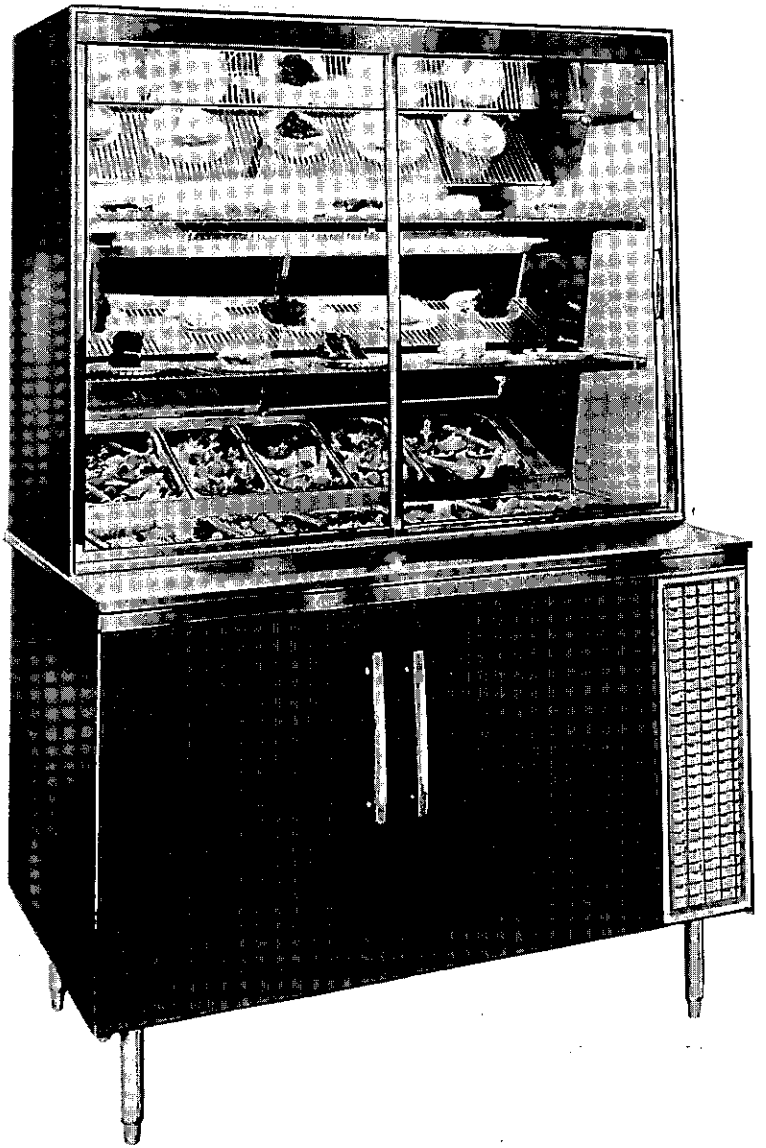
5.04 SILVER (FLATWARE) DISPENSERS: All containers used for dispensing flatware shall be readily removable for cleaning and shall be easily cleanable. They shall be so constructed that flatware can be picked up by the handles only and the other portions of the flat-ware covered and protected from handling.

5.05 DISPLAY CASES: Display cases shall be fabricated in such a manner as to eliminate dust collecting projections or moldings and minimize open joints and sharp corners. Where glass is used, it shall be tight against frame or trim members. Where sliding doors are used to enclose one or more sides of a display case, they shall be readily removable. Hinged or pivoted-type doors need not be readily removable when designed so that thorough cleaning may be effected.

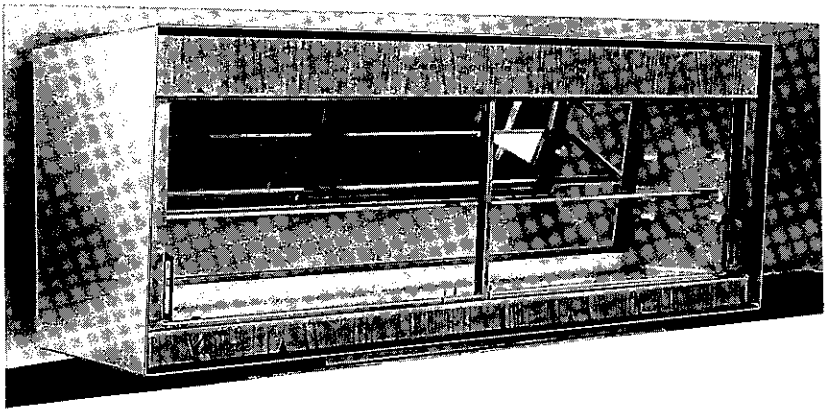
5.06 COUNTER GUARDS: Displays of unpackaged foods are to be effectively shielded so as to intercept the direct line between the average customer's mouth and the food being displayed.

5.061 Guards shall be mounted so as to intercept a direct line between the customer's mouth and the food display area, at the customer "use" position. The vertical distance from the average customer's mouth to the floor shall be considered to be 4 feet 6 inches to 5 feet for food service establishments. Special consideration must be given as to the average customer's height in educational institutions and other special installations.

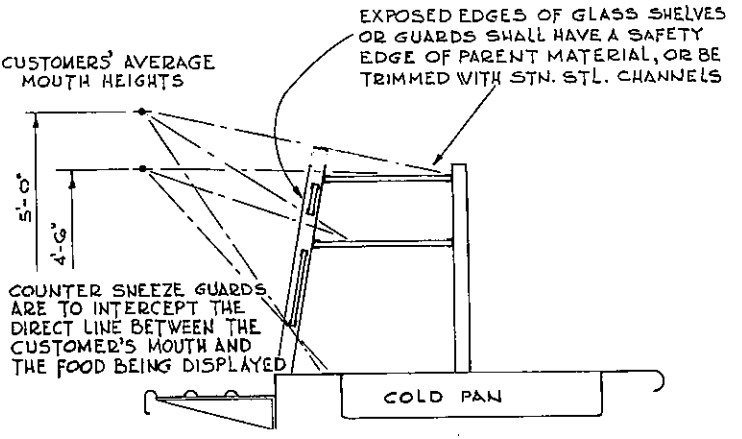
5.062 Such guards are to be fabricated of easy-to-clean, sanitary materials conforming to "MATERIALS" specifications. (Items 3.00 and 3.02).



Upright Refrigerated Display Case



Counter or Wall Display Case



5.061—Guards on Counter Display Cases

5.063 The edges of glass or other hazardous materials shall be trimmed with a smooth protective member, have a safety edge of parent material or be of a material which does not present a hazard in this connection. For standard or bracket specification: see Item 4.29 and 4.35.

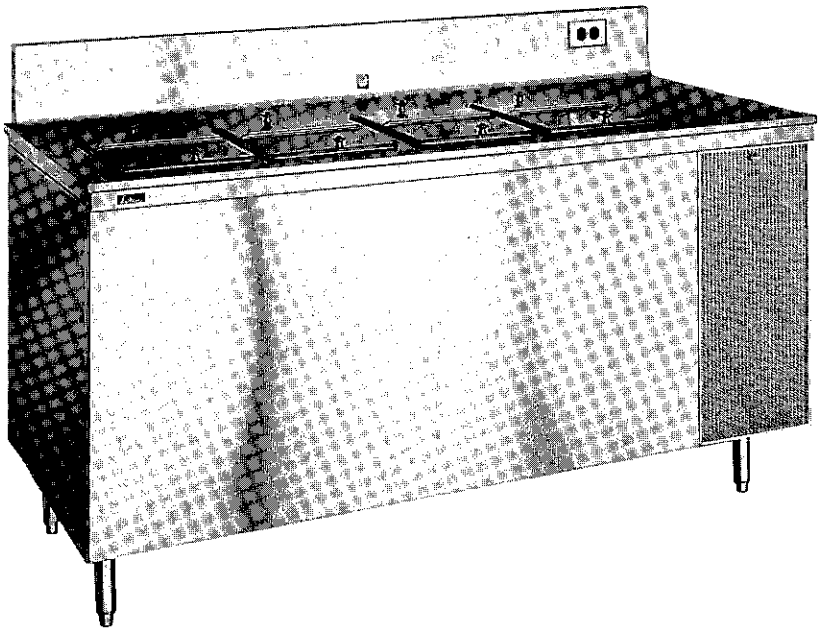
5.07 SELF-LEVELING STORAGE SYSTEMS: Parts of the leveling mechanism, system or device which are not fully protected against dirt, splash, spillage or contact with food shall be easily cleanable.

5.08 ICE CREAM STORAGE COMPARTMENTS: The inside lining of ice cream storage compartments shall be considered Splash Zone. If painted or coated the base material shall conform to the material requirements for Splash Zone.

5.081 Top openings to ice cream storage compartments shall comply with Item 4.25.

5.082 Drains, if provided, shall be not less than ⅝ inch I.P.S.

5.09 CREAMER: The top capping or working surface shall be one piece or all seams shall be filled and smooth. Capping shall be sealed to external enclosure. Intersections of vertical sections and the top capping of the syrup rail shall have a minimum inside radius of ¼".



Creamer

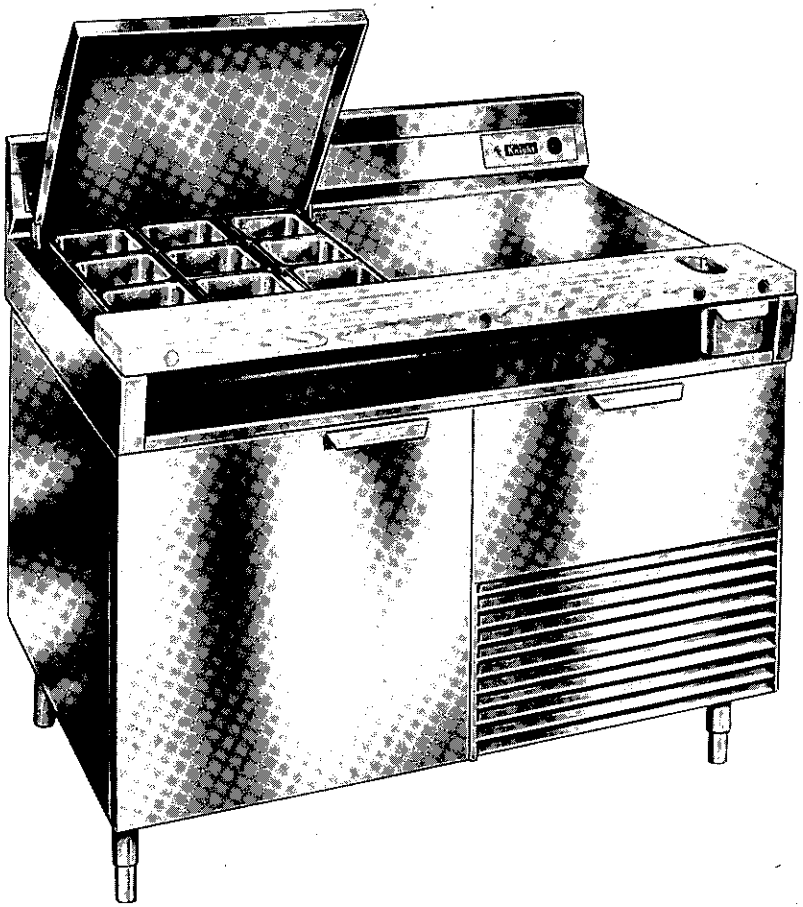
5.10 BOBTAIL:

5.101 If a sink section is constructed as an integral part of a bobtail, the sink section shall conform to specifications of Item 5.17.

5.102 INSIDE LINING (Syrup Rail): Refrigeration system shall not be exposed. Soda, syrup and water lines may be exposed in the syrup rail, but, if exposed, shall be so located as to be easily cleanable. Every inside angle shall have a minimum radius of 1/16" and all seams shall be filled and smooth. The bottom shall be sloped to provide complete drainage. The lining of syrup rail shall be considered Splash Zone.

5.103 DRAINS (Syrup Rail): Drains from syrup rails shall not be less than ⅝" I.P.S.

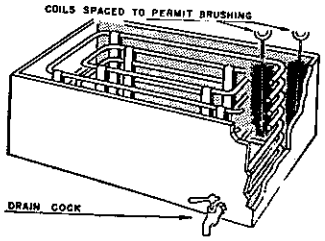
5.11 REFRIGERATED STORAGE COMPARTMENTS: Shall be so designed, constructed and equipped as to maintain the maximum temperatures indicated below when tested in accordance with the provisions of nSf Standard No. 7, provided, however, that Refrigerated Short-Term Display cases shall be exempt from the 70% maximum operating times Refrigerators 40°F.



Sandwich Refrigerator

5.111 Refrigerated units having plate shelves may use solder to obtain a 1/16" radius at the top of the interior liner.

5.112 When water bath cooling of water and soda is used the cooling coils shall be accessible for cleaning with brush and there shall be a readily accessible drain cock or plug to facilitate drainage.



5.112—Water Bath Cooling

5.113 When instantaneous coolers are used, the cooler must be sealed to the floor of the storage compartments or raised off the floor of the compartment at least 1", to allow for cleaning underneath it with a brush.

5.114 Detailed requirements for refrigerated equipment will be found in NSF Standard No. 7 entitled "Food Service Refrigerators and Food Service Storage Freezers." Provided, however, the requirements of Items 4.03, 4.031, 4.032, 4.033 and 4.061 of this Standard shall apply to undercounter equipment and short term display cases.

5.12 DRIP PAN: Shall be drained into the syrup rail or directly into the fountain drainage system.

5.13 SYRUP AND CRUSHED FRUIT CONTAINERS: Shall be of the straight sided type. Every inside angle shall have a minimum radius of ¼". Covers shall be provided for crushed fruit containers and shall have overlapping flanges.

5.14 ICE PANS: All seams resulting from the joining of material shall be made in such a manner that the finished seam is completely sealed and smooth. Every inside angle shall have a radius of not less than 1/16". Hard solder may be used to obtain this radius.

5.141 Ice pans shall be so designed and constructed and/or so located as to preclude contamination of the ice therein by users of adjacent drink dispensing facilities. Drains shall not discharge into the ice pan. A suitable cover meeting the requirements of Item 4.261 shall be provided.

5.15 SYRUP PUMPS: The entire pump assembly shall be designed so that it is readily cleanable. This is to include all valves and springs.

5.151 The assembly below the cover shall not have V type threads. Locking devices consisting of threads may be used providing the thread is cleanable and all surfaces of the thread are plainly visible for inspection, and the number of threads is limited to two. Limitations regarding sharp angles shall apply to threads.

5.152 The assembly in the delivery tube shall not have V threads. The assembly in the delivery tube shall not have internal threads.

5.153 Tubes shall be designed so that a cleaning brush may readily enter one end and come out the opposite end.

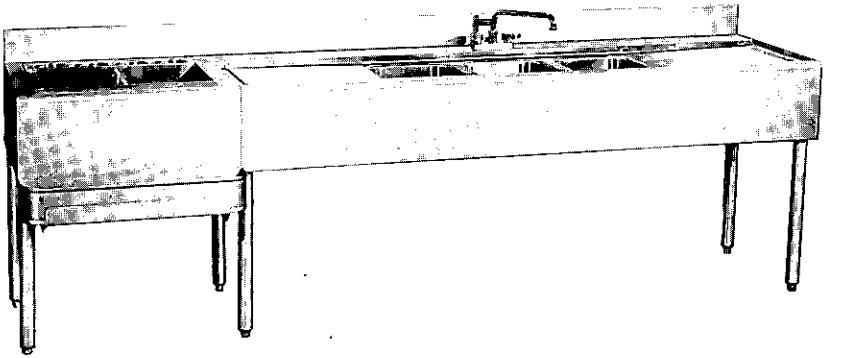
5.154 When plugs are used at the ends of tubes, they shall be readily removable for cleaning.

5.155 Top plates of syrup pumps shall have turned down edges, or aprons, built to fit closely over syrup containers.

5.16 CARBONATORS: Carbonator pumps shall comply with the material requirements of Item 3.01 for food contact surfaces. The general design of the pump exterior shall comply with the intent of Item 4.00.

5.161 Carbonator tanks shall comply with the material requirements of Item 3.01 for food contact surfaces. The general design of the tank exterior shall comply with the intent of Item 4.00 or 4.10 depending on location.

5.162 Effective means shall be provided to prevent carbon dioxide or carbonic acid or carbonated water from coming in contact with copper or copper alloy watertubing and devices or service lines.



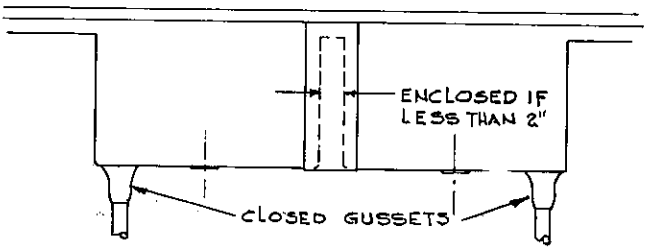
Under Counter Sink

5.17 SINKS: Sinks or sink bowls, including partitions, shall be considered food zone and shall be drawn or welded and polished or otherwise fabricated to conform with Item 4.03. The use of solder or fillet material to obtain the desired radius is not acceptable. The space between the bowls or compartments of sinks shall be completely filled, the space sealed or a minimum space of 2 inches shall be provided between the bowls or compartments which shall be open at front bottom and back of sink. Sinks shall be built in accordance with the requirements of this Standard for Materials and Workmanship.

5.171 UTILITY SINKS: Where multi-use eating and drinking utensils are washed in a scullery, kitchen or apart from the fountain, or if such utensils are washed and sanitized in a mechanical dishwasher; one or more sinks (basins) installed at the fountain to provide facilities for general clean-up shall be deemed sufficient.

5.172 FOUNTAIN GLASSWARE SINKS: Where only frozen desserts, milk, soda water and similar fountain products are served and where multi-use utensils are hand washed at the fountain; or if food also is served, and multi-use food utensils are washed and sanitized in a mechanical dishwashing machine, and glassware only is hand washed at the fountain, each sink section shall contain three (3) or more sinks (basins) each with a minimum water capacity of 3½ gallons below the overflow level and with minimum water depth of 6½".

EXAMPLE OF ENCLOSED SPACE WHEN SPACE EXISTS BETWEEN SINK BODIES - FRONT, BOTTOM AND BACK OF OPENING MUST BE ENCLOSED TO EXCLUDE VERMIN



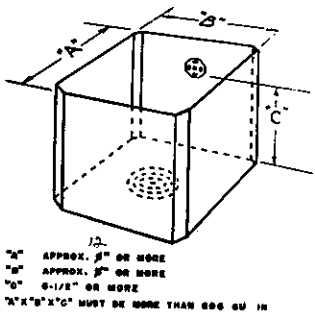
FRONT ELEVATION - 2 COMPARTMENT SINK

5.17—Enclosed Spaces—Sinks

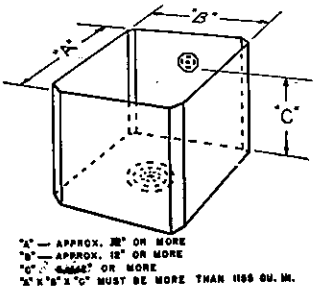
5.173 A hot water sanitizing unit of a size and capacity at least equal to one of the required sinks shall be considered as representing a sink basin.

5.174 FOOD SERVICE SINKS: Where food is served in addition to fountain products and dishes are hand washed at the fountain, each sink section shall contain three (3) or more sinks (basins), each with a minimum opening dimension of approximately 12" with a minimum water capacity of 5 gallons below the overflow level and a minimum water depth of 8".

5.175 A hot water sanitizing unit of a size and capacity at least equal to one of the required sinks shall be considered as representing a sink or basin.



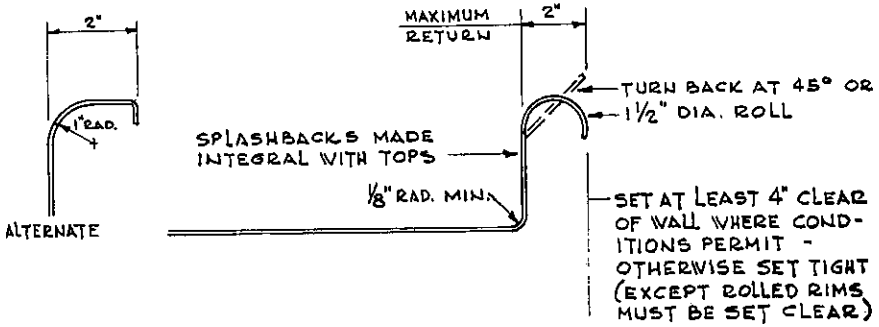
5.172—Sink



5.174—Sink

5.176 OUTLETS OF SINKS OR BASINS: Where standing waste pipes are provided as overflow outlets, such pipes shall be so placed as to occupy as little space in the sink as possible; and shall be placed near the wall.

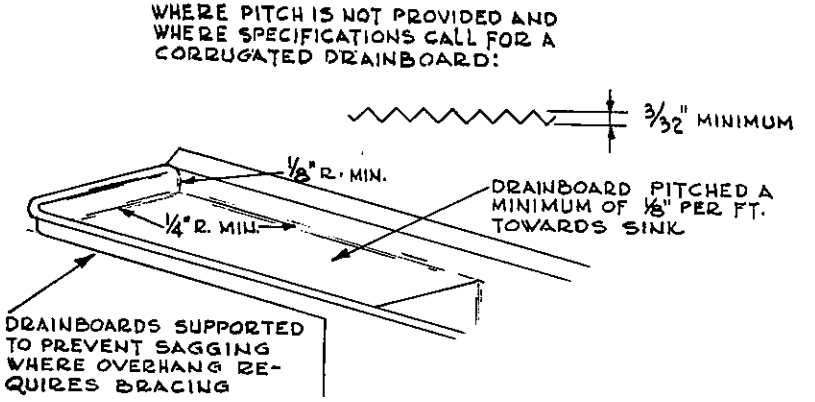
5.18 SPLASH BACKS: Where used, shall be sealed watertight to the working surfaces of the section to which attached, and all interior angles shall be smooth and each shall have a minimum radius of ⅛".



5.18—Splashbacks

5.181 SINKS: There shall be splash backs at the backs of all sink sections and at the ends where sinks fit against the return ends of counters or walls. Splash backs at the back of sink sections, with exception of underbar work board, shall be formed integral with tops or formed separately and integrally welded. Splash backs attached to undercounter workboards shall conform to Item 5.17.

5.19 DISHTABLES AND DRAINBOARDS*: Dishtables and drainboards shall be drawn or welded to conform with Items 4.031 and 4.032. The use of solder or fillet material to obtain the desired radius is not acceptable. Dishtables and drainboards shall have turned up edges not less than ½ inch and a minimum pitch of ⅛ inch per foot. Drainage shall be so directed as to prevent contamination of other areas of the dishtable or drainboard. Dishtables and drainboards shall be supported in such a manner as to prevent sagging, shall be integral with sink and shall comply with Items 4.08 and 4.16. Corrugation of drainboards shall, when provided, be not less than 3/32" deep.



5.19—Drainboards

5.20 SOUND DAMPING: Dishtables and drainboards when required to be sound dampened shall have such damping materials applied in a manner that no dirt or debris will collect and adhere thereto and the surface will be non-absorbent and easily cleanable and shall comply with Item 3.09.

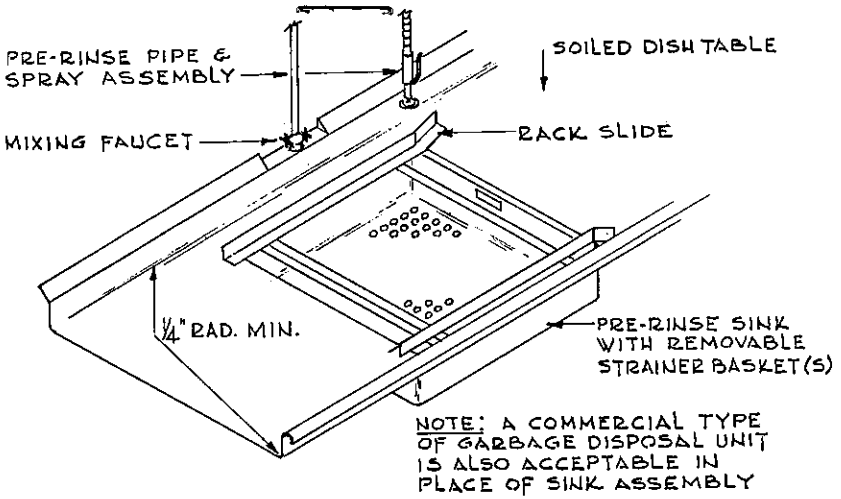
5.21 DRAINBOARD SPACE*: A physically separated drainboard space shall be provided for clean and soiled utensils.

5.211 DIVIDED DRAINBOARD: A section to be used for clean utensils raised at least ½ inch above a section for dirty utensils shall be acceptable.

*NOTE: Special attention must be given to the adequacy of drainboard space, both soiled and clean, to assure proper safeguards against contamination of clean utensils, breakage due to lack of landing space for soiled utensils, and performance of the planned tasks at the location.

5.22 AUXILLIARY CLEANING FACILITIES AND ACCESSORIES: Specially designed and fabricated equipment, when provided to promote and facilitate utensil and dish cleaning, shall conform to the following specific requirements.

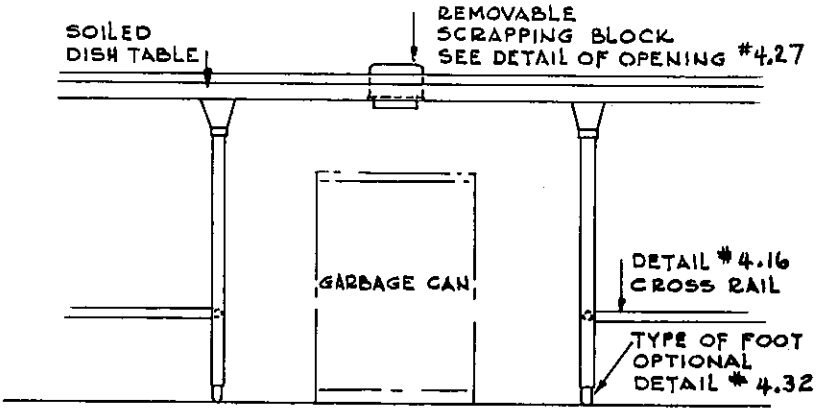
5.221 DUMP SINKS: Sinks used for the disposal of leftover liquids and solids from soiled utensils and/or collecting other debris shall be fitted with removable strainer baskets.



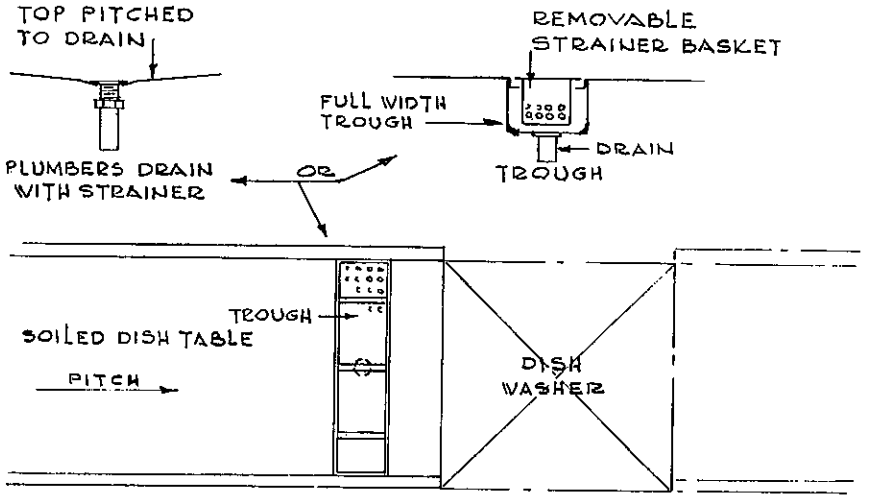
5.221—Pre-wash Equipment

5.222 SCRAPPING BLOCKS: Scrapping blocks shall be made readily removable. The construction shall be such as to prevent refuse from falling outside the food waste receptacle. If garbage containers are required, the space provided shall be free of structural angles, protruding ledges, crevices and other dirt catchers; and the space shall be such as can be readily inspected, cleaned and washed.

5.223 TABLE SCUPPERS: Table scuppers shall be across the entire flat section of the table to prevent soiled water and debris from draining into the wash tank of dishwashing machine or other compartments. Two types may be used, namely standard plumbing drains with strainers, or fabricated troughs with removable strainer baskets.



5.222—Scrapping Blocks

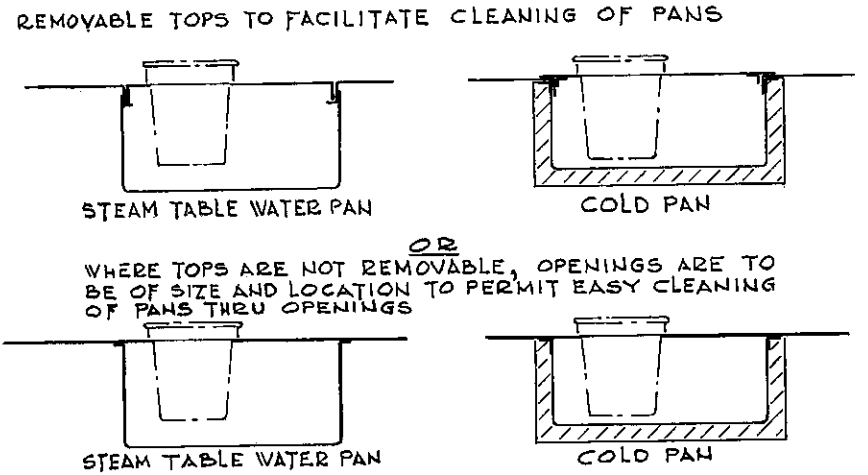


5.223—Table Scuppers

5.224 TABLE SCUPPERS AND DUMP SINKS: Table scuppers and dump sinks shall be drawn or welded and polished to conform with Items 4.031 and 4.032.

5.23 TOPS OF COUNTERS, TABLES, AND BACK BARS: Tops, if exposed, shall be in one piece, or all seams shall be welded, ground and made smooth, provided that field joints shall comply with Item 4.24.

5.24 TOPS OF STEAMTABLES WITH WATER PANS AND TABLES WITH COLD PANS: To facilitate easy cleaning of interiors, where practical steamtable tops and the tops of tables with cold pans shall be removable. Where such tops are not made removable, they shall have openings of a size and location that will permit complete access for cleaning the entire interior through such openings.

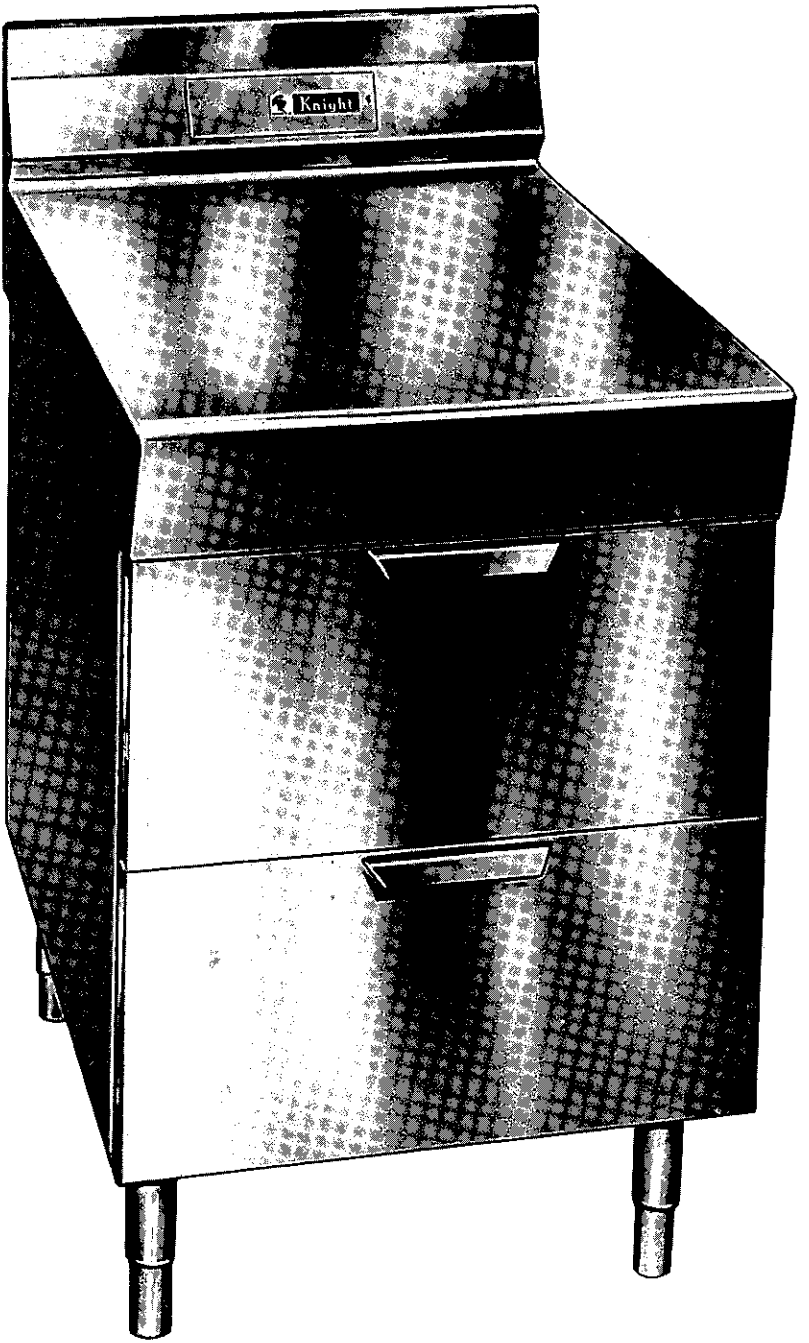


5.24—Tops of Steam Tables with Water Pans & Cold Pans

5.25 URN STANDS: Urn stands shall have built-in pitched troughs equipped with a non-splash, removable drain plate beneath dispensing faucets. Said trough shall be provided with a 1 inch I.P.S. drain connection, or removable drain cup. Edges of punched slots and openings shall be made smooth. Wherever necessary to prevent overflow onto the floor or other units, edges shall be raised as required in Item 4.25.

5.26 WATER STATIONS: Water stations shall be constructed in accordance with Item 5.25 except that removable cups are not satisfactory. The waste lines from such stations shall not drain into the food zone.

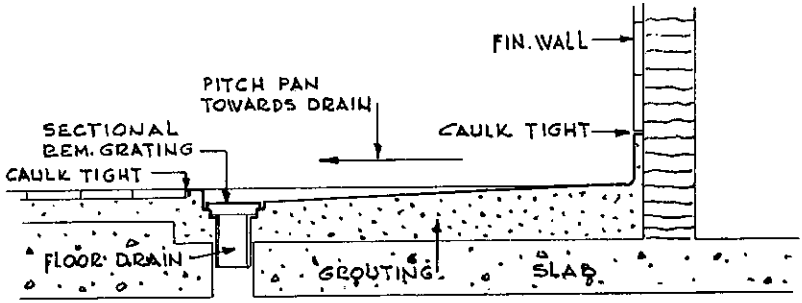
5.27 DIPPER WELLS: All wells for ice cream or other dippers shall be equipped with running water. There shall be no rough or open seams. The top dimensions of the well shall not be less than 4 inches by 4 inches and every interior angle shall have a radius of not less than ⅛ inch. Separating partitions of dipper wells shall be readily removable for cleaning. Any overflow standpipe shall be readily accessible for brushing and cleaning. Interior surfaces of the dipper well shall be considered food contact surface.



URN Stand

5.271 WATER PIPES: Water pipes shall comply with the provisions of the National Plumbing Code ASA A40.8-1955 which states: The air gap in a water supply system is the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank or plumbing fixture and the flood level rim of receptacle—the minimum required air gap shall be twice the diameter of the effective opening, but not less than 1 inch.

5.28 DRIP PANS: Drip pans for kettles and steamers and similar equipment shall be depressed and sealed. Bottoms of such pans shall be pitched to drains with removable strainers. Raised blocks, when provided, shall be made of metal identical to the drip pan and shall be continuously welded thereto to prevent seepage under the drip pan. All such blocks shall be of a height equal to that of the drip pan. Any holes drilled into the blocks shall be made water-tight. Drip pans shall be constructed in accordance with the requirements of Item 4.03.

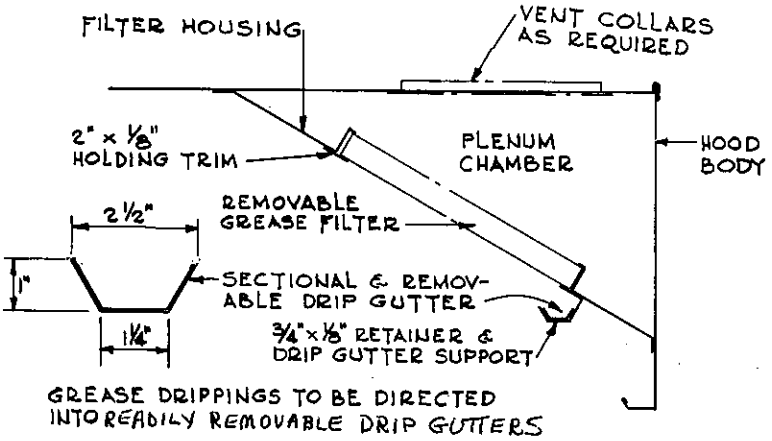


5.28—Drip Pan

5.281 CURTAIN TYPE: The interior of the hood shall be in accordance with Item 4.11 and 4.12.

5.29 CANOPIES OR HOODS: All canopies and hoods shall have inner surfaces that are smooth and easily cleanable. Where reinforcing must be on the interior, it shall be smooth, easily cleanable and so used that it will not act as a dam or create a surface on which grease or condensate will collect and drip. Gutters, when provided, shall be smooth, easily cleanable and fitted with a drain or clean-out opening.

5.292 OPEN TYPE HOODS: Hoods shall have smooth, easily cleanable interiors. Where gutters are built into bottom edges, they shall be of a size and design to make cleaning easy.



5.29—Plenum Type Hoods—With Filters

5.293 PLENUM TYPE HOODS—WITH FILTERS: Where filters are used in hoods, they shall be easily removable and so installed as to prevent drippage into food.

5.294 PLENUM TYPE HOODS—WITHOUT FILTERS: Where baffles, turning vanes, and sliding dampers are used for the purpose of controlling air volume, they shall be easily accessible or readily removable and easily cleanable.

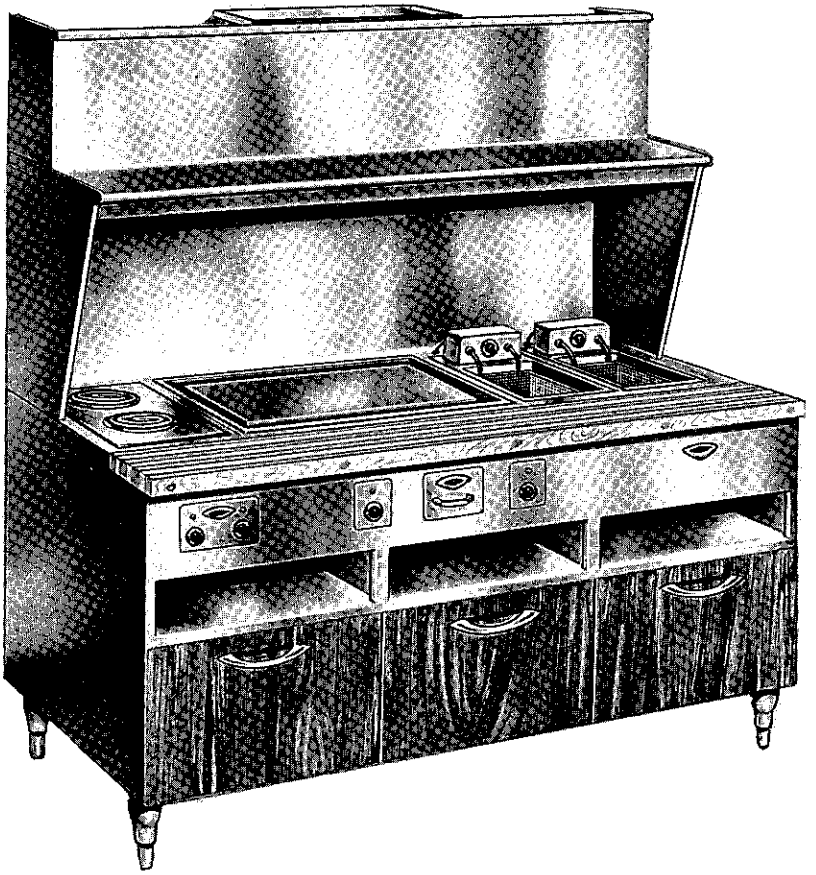
5.30 WOOD-TOP BAKERS TABLES AND CUTTING BOARDS: All Wood-Top Bakers Tables and Cutting Boards shall meet the following requirements:

5.301 CUTTING BOARDS shall be of such size as to be portable and shall be readily removable.

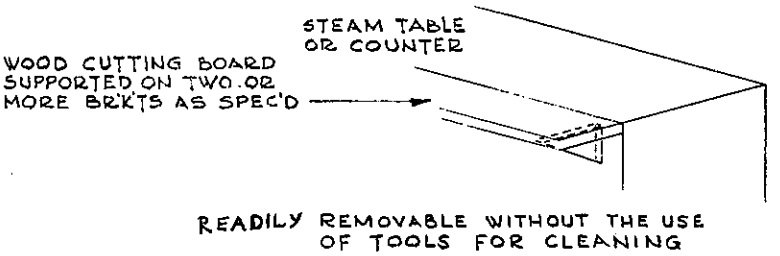
5.302 LAMINATION WIDTH: The maximum lamination width shall be 1¾ inches.

5.303 BOND SURFACES: Surfaces to be bonded shall be microplaned to ± .002" variation and bonded within a period of time to assure the tolerance.

5.304 LAMINATION SURFACES: All laminating surfaces shall be straight grained and free from knots, decay, warp, larva channels, open checks and splits on all contact surfaces. All laminates shall be edge grained with only the natural deviation in angle of grains to working surface.



Updraft Equipment Stand



5.301—Cutting Board

5.305 ADHESIVES: Adhesives shall meet the requirements of 3.01 and the requirement of U.S. Commercial Standard CS 233-60.

5.306 BONDING: Surfaces to the bonded shall be in intimate contact at controlled pressure of between 150 and 250 p.s.i. The pressure shall be continuous, or at points within 12 inches spacing along the lamination and within 6 inches of the ends. All glued joints shall equal or exceed the shear strength of the wood (minimum 1800 p.s.i.)

5.307 FINISH: All food contact surfaces shall be properly machined and sanded. There shall be no imperfections on any contact surfaces. (Sealers, if used, shall meet the requirements of 3.01).

5.308 EXPANSION: Table tops shall be so installed as to assure normal atmosphere on all surfaces including the bottom. Installation, or attachment, of tops shall be such as to afford 1/16 inch expansion for every lineal foot of width (perpendicular to grain direction). Slotted or oversize holes may be used in the supporting frame to provide this tolerance.

5.309 INSTALLATION AND CLEANING INSTRUCTIONS: The manufacturer shall provide instructions with each wood top table outlining recommended installation practices as well as detailed cleaning instructions.

5.31 WHEELED EQUIPMENT: Wheeled equipment shall be constructed to comply with applicable Items of Sections 1, 2, 3 and 4 and the following specific items:

5.311 PAN WELLS: In all food carts, wells for pans shall be constructed with coved corners meeting the construction requirements of Items 4.031 and 4. 032 to facilitate cleaning.

5.312 CLEANING (AUTOMATIC): When equipment is to be subjected to automatic cleaning methods, horizontal projections and other obstacles which prevent self-draining shall be eliminated. Manufacturer's recommendations for cleaning and maintenance shall be provided.

5.313 DRAINS: Wheeled equipment shall not be required to have drains; however, if provided, such drains shall comply with the applicable requirements therefor.

APPENDIX A

PARTICIPATING COMMITTEES

COMMITTEES PARTICIPATING IN THE PREPARATION OF THE STANDARD

NATIONAL SANITATION FOUNDATION
JOINT COMMITTEE ON FOOD EQUIPMENT STANDARDS
1952 (Date of Original Adoption)

Chairman, C. L. Senn, Health Department, Los Angeles, California

A. W. Fuchs, Washington, D.C. representing the U.S. Public Health Service

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†C. W. Clark, State Department of Health, Portland, Oregon, Chairman, Committee on Food Equipment, National Association of Sanitarians (Dr. R. V. Stone became chairman in 1951)

A. H. Fletcher, State Department of Health, Trenton, N.J., Chairman, Food Committee, Conference of State Sanitary Engineers.

M. S. Hilbert, Health Department, Wayne County, Michigan, Chairman, Food Committee, Conference of Municipal Public Health Engineers.

Secretary, W. D. Tiedeman, School of Public Health, University of Michigan, Chairman, Committee on Food Sanitation, Engineering Section, American Public Health Association.

JOINT COMMITTEE ON FOOD EQUIPMENT STANDARDS

1965 (Date of Major Revision)

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SODA FOUNTAIN AND LUNCHEONETTE EQUIPMENT STANDARDS (1952)

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Robert Schneider, Stanley Knight Corporation, Chicago, Illinois

Joseph Yuza, Liquid Carbonic Corporation, Chicago, Illinois

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for
SODA FOUNTAIN AND LUNCHEONETTE EQUIPMENT STANDARDS 1965 (Date of Major Revision)

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1965 (Date of Major Revision)

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APPENDIX B

SUGGESTED REGULATIONS

SUGGESTIONS CONCERNING REGULATIONS GOVERNING SODA FOUNTAIN AND LUNCHEONETTE EQUIPMENT

It is strongly recommended that these Standards representing a cross-section of opinion of workers in the field of environmental health be accepted and followed by enforcement officials. However, their incorporation in detail into local sanitary codes does not appear to be necessary and is likely to be cumbersome.

In municipalities, counties, and health districts in which the adoption of legislation by reference is considered legal, the following regulation should serve to implement the use of the Standard for Soda Fountain-Luncheonette Equipment and Appurtenances.

ALL SODA FOUNTAIN—LUNCHEONETTE EQUIPMENT & APPURTENANCES INSTALLED ON OR AFTER _____ IN PUBLIC FOOD SERVICE ESTABLISHMENTS IN THIS JURISDICTION SHALL MEET THE NATIONAL SANITATION FOUNDATION STANDARDS FOR SUCH EQUIPMENT.

or, if considered desirable, it will be simpler to adopt the following more general regulation applying to all standards in the food service field:

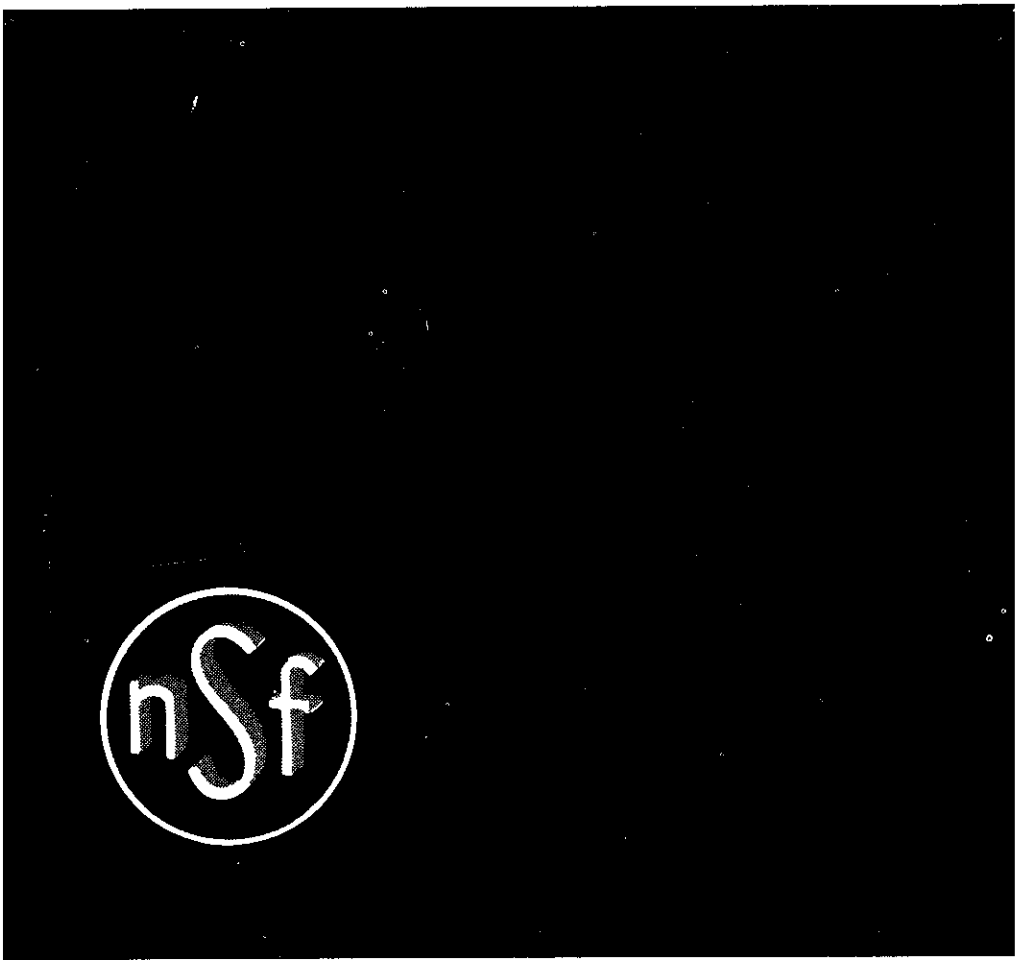
ALL EQUIPMENT INSTALLED ON OR AFTER _____ FOR USE IN PREPARATION OF FOOD IN FOOD SERVICE ESTABLISHMENTS IN THIS JURISDICTION SHALL MEET NATIONAL SANITATION FOUNDATION STANDARDS.

In fact the adoption of this broad regulation will save time as well as advertising and printed costs as, no doubt, many different standards will be adopted. Otherwise each standard will require the adoption of a specific regulation. Wherever the legality of adopting legislation by reference is not recognized, delete the portion of either of the above regulations after the word "SHALL" and substitute therefore the words "BE OF A TYPE APPROVED BY THE HEALTH OFFICER." The health officer may be guided by the National Sanitation Standards in his approval of types.

INDEX

SANITATION is a way of life. It is the quality of living that is expressed in the clean home, the clean farm, the clean business and industry, the clean neighborhood, the clean community. Being a way of life it must come from within the people; it is nourished by knowledge and grows as an obligation and an ideal in human relations.

THE NATIONAL SANITATION FOUNDATION


nSf

TAB SET C

Existing Business

August 2018 Annual Meeting Action Items

LIST ACTION ITEMS:

Tab F2 – New Issue Paper FE-2018-08 – Change of NOTE in 5.2.1 of Standard 8
A.Rose to send directly to JC Approval Ballot JCFE ballot 09-11-2019 33:0:0; CPHC ballot pending (not scheduled)

Tab F3 – New Issue Paper FE-2018-09 – Change of NOTE in 5.4.2 of Standard 21
A.Rose to send directly to JC Approval Ballot JCFE ballot 09-12-2019 33:0:0; CPHC ballot 10-08-2018 14:1:0; issue paper withdrawn 05-03-2019 & replaced with FE-2019-05

Tab F1 – New Issue Paper FE-2018-07 – Glass in Bi-Metal Thermometers
A.Rose to send to TG on Food Equipment Materials to Standard 51 TG 08-23-2018

Tab F4 – New Issue Paper FE-2018-10 – Food Shields
A.Rose to send to TG on Food Shields to Standard 2 foodshields TG 08-23-2019

Tab F5 – New Issue Paper FE-2018-11 – Change of NOTE in Section 5.2.2 of Standard 5
A.Rose to send to TG on Standard 5

Tab F6 – New Issue Paper FE-2018-12 – Change of NOTE in Section 7 of Standard 5
A.Rose to send directly to JC ballot JCFE ballot 01-29-2019 27:0:0; CPHC ballot 02-22-2019 15:0:0

Tab F7 – New Issue Paper FE-2018-13 – Potable Water Definition
A.Rose to send to Standard 12 Task Group to Standard 12 TG 08-23-2018

Tab F8 – New Issue Paper FE-2018-14 – ICP Changed to CIP
A.Rose to send to TG on Food Equipment Fabrication
Standard 2 JCFE ballot 03-26-2019 26:0:0
CPHC ballot 05-31-2019 15:0:0
Standard 170 JCFE ballot 03-26-2019 26:0:0
CPHC ballot 07-02-2019 12:0:0

Tab F10 – New Issue Paper FE-2018-15 – Tubing in Cappuccino Machines
A.Rose to send to TG on Hot Food Equipment JCFE ballot 05-08-2019; CPHC ballot pending (not scheduled)

Tab F11 – New Issue Paper FE-2018-16 – New Biofilm Cleaning Standard
A.Rose to withdraw Issue Paper

Tab H1 – New Issue Paper FE-2018-17 – Glass in Food Zone
A.Rose to send to TG on Food Equipment Fabrication

Tab H2 – New Issue Paper FE-2018-18 – Dinnerware versus Tableware
A.Rose to send to TG on Food Equipment Fabrication

Issue Papers Received and Assigned Since Previous JC Meeting

To be discussed during each respective Task Group Update

Issue Document/Title	TG Assigned
FE-2018-19 - Normative Reference Update	Standard 3
FE-2019-01 - Metric Practice Reference Update	Standard 7
FE-2019-03 – Metric Practice Reference Update	All FE Standards
FE-2019-04 – Surface Cleanability	Standard 51
FE-2019-07 – Dinnerware versus Tableware	Standard 2

Yellow Highlights indicate balloted, completed and published language

Standards Published Since Previous JC Meeting

3 – Warewashing Equipment
6 – Dispensing Freezers
12 – Automatic Ice Making Equipment

TAB SET D

Task Group Updates

TAB D1

Standard 2 – Food Equipment

Task Group Chair Update

Task Group on Food Equipment Fabrication (Downloaded May 31, 2019)			
Mike Anthony		General Interest	Observer
Tracy Artley	University of Michigan	General Interest	Observer
Theodore Barber	Theodore Barber & Company	User	Member
Swati Bhatt	Los Angeles County	Public Health / Regulatory	Member
Jim Brady	Wawa, Inc.	User	Group Chair
Paul Brown	W.A. Brown & Son, Inc.	General Interest	Observer
Jeff Burnett	Perlick	Industry	Observer
Pierre Clemons	Cambro	Industry	Observer
Steve Combs	Everidge	General Interest	Observer
Millicent Crenshaw	Cambro	Industry	Member
Tiffany Curry	Franke Foodservice Solutions, Inc.	Industry	Member
Kelli Fall	NSF International	General Interest	Observer
Burl Finkelstein	Kason Industries	Industry	Member
Gilad Gabbay	MDPH/BEH Food Protection Program	Public Health / Regulatory	Member
Tony Gagliardi	Consultant - Public Health/Regulatory	User	Member
Beth Glynn	Starbucks Coffee Company	User	Member
Jim Godiska	Follett Corp.	General Interest	Observer
Cullen Hackler	Porcelain Enamel Institute	General Interest	Observer
J. Jumalon	Wake County North Carolina	General Interest	Observer
Michael King	Solid Surface Association of America	General Interest	Observer
Mike Kohler	NSF International	User	Member
Sarah Krol	NSF International	General Interest	Observer
Bob Kuhn	Carlisle	Industry	Member
James Leonard	Princess Cruises	General Interest	Observer
Girvin Liggans	Food and Drug Administration	Public Health / Regulatory	Member
Gary Maxon	The Delfield Co.	Industry	Member
Keith McKowen	University of Michigan	General Interest	Observer
Thomas McNeil	U.S. Army	User	Member
Jon Murray	Structural Concepts Corporation	General Interest	Observer
Dipak Negandhi	A.O. Smith	Industry	Member
Massoud Neshan	Southern CaseArts	Industry	Member
Michael Perez	Baring Industries	User	Member
Bernard Poton	Intertek	General Interest	Observer
Robert Powitz	R.W. Powitz & Assoc., P.C.	General Interest	Observer
Allan Rose	NSF International	General Interest	Secretariat
Willard Sickles	InterMetro Industries Corp.	Industry	Member
Joshua Spencer	Stone Spectrum	User	Observer
Mardy Wagner	BKI	General Interest	Observer
Jeff Wright	Ferro Corp.	General Interest	Observer
Amanda Zeoli	NSF International	General Interest	Observer

Task Group Chair Update

Open Issue Papers:

Issue Paper # FE-2018-17 Glass in Food Zone Issue Document	
Summary	**Status**
Consider adding standards related to glass and ceramics to NSF standard 2.	In Process (Teleconference on April 16)
Issue Paper # FE-2019-06 Slotted Fasteners in Marine Equipment	
Discuss the use of slotted fasteners	New Issue June 2019, not discussed
Issue Paper # FE-2019-07 Dinnerware vs. Tableware	
Standard 2 applications	Balloted by JC
Issue Paper # FE-2019-03 Metric Practice Normative Reference	
Reference was outdated	Balloted by JC; CPHC ballot in process

Closed Issue Papers:

Issue Title	Status of completion (completed, tabled, etc)	Probable Publication Date
FE-2018-18: Dinnerware vs. Tableware	Standard 170 Complete	November?
FE-2017-14: IPC changed to CIP	Complete	November

Short Status of where task group has been since prior JC Face-to-Face:

Conference Calls

1. December 4, 2018
2. February 20, 2019
3. April 16, 2019

Task Group Chair Update

Topic 1 Change "ICP to CIP" (2i34r3 and 170i24r2)

JC Ballot 26-0
CPHC Ballot 15-0

Standard 2 Application
5.1.3
5.1.4
5.52
6.1.2.2
A.1 Summary

Standard 170 Application

3 Definitions

•

3.114 **CIP** ~~**in-place cleaning**~~**:** A method of cleaning and sanitizing equipment surfaces ~~in their assembled form~~ in place by mechanically circulating or passing a detergent solution, water rinse, and sanitizing solution onto or over the surfaces. Equipment designed for manual cleaning such as band saws, slicers, or mixers are not intended for CIP.

Rationale: *The Conference for Food Protection has requested considerations be made for modifying NSF/ANSI Standards cleaning terminology to align with the terminology used in the FDA Food Code. The term in-place cleaning currently used in the NSF Standards is requested to be replaced with the term CIP used in the FDA Food Code. The concept of CIP as defined in the Food Code is currently being applied in the NSF/ANSI Standards under the different term in-place cleaning. The alignment of terminology will provide consistency in the industry.*

Task Group Chair Update

Topic 2: Change term dinnerware to tableware

Standard 170 Application

Ballot 170i25r3 JC Vote: 29-0

3 Definitions

•

3.XX ~~dinnerware~~ tableware: Items for table use such as flatware, dishes, plates, bowls, saucers, cups, tumblers, compartmentalized trays, and covers that may be in direct contact with food.

***Rationale**: This change makes terms consistent with the terminology used in the FDA Model Food Code, and with NSF/ANSI P392.*

Ballot 170i25r4 JC Vote: 28-0

3.XX dinnerware: ~~Items for table use such as plates, bowls, saucers, cups, tumblers, compartmentalized trays, and covers that may be in direct contact with food.~~ See tableware.

Standard 2 Application

Ballot 2i33r1 JC Vote: In progress at time of report submission

1 General

•

1.2 Scope

Equipment covered by this Standard includes, but is not limited to, bakery, cafeteria, kitchen, and pantry units and other food handling and processing equipment such as tables and components, counters, ~~dinnerware~~ tableware, hoods, shelves, and sinks.

5 Design and construction

•

5.61 Identification mark

~~Dinnerware~~ Tableware products shall have a permanent marking or an identification plate that denotes the manufacturer's name and product model number. If the manufacturer has more than one production location for the ~~dinnerware~~ tableware product, then the production location shall be identified on the marking or identification plate.

***Rationale**: now that that definition for Dinnerware has been replaced with Tableware win Standard 170, the logical next step is to replace the use of the term Dinnerware with Tableware in Standard 2.*

Task Group Chair Update

Topic 3 Include glassware and ceremics in Standard 2

1. Proliferation of this full service category and subsequent equipment/equipment accessories has elevated the need to review possible glassware/ceramics material/design protocols.
2. Starbucks has developed their own in light of no other commercially applicable standards.
3. Future review of P392 (Tableware for Home Use) however:
    a. Its test protocol is not commercially focused and therefore has no health department or code applications in its test protocol development.
    b. Strict food code alignment would be required in any review.
4. Protocol criteria evolution would dictate the Standard in which such criteria may be applicable:
    a. Design criteria-Standard 2
    b. Material durability-Standard 51

Topic 4 Metric practice normative reference needs updating

Ballot 2i35r1
JC Vote: 27-0
CPHC: In Progress at time of report submission

.

~~IEEE/ASTM SI 10 – 2010. *American National Standard for Metric Practice*~~

IEEE/ASTM SI 10 – 2016, *American National Standard for Metric Practice*

Note that some standards have already been updated such as Standard 3 and Standard 7.

Topic 5 Standard 2 Task Group Chair

Burl Finkelstein has graciously agreed to chair this task group upon my retirement in November. His years on the task group pre dates my NSF participation, has been a consistent and active participant in teleconferences, TG face to face meetings (yes, we used to have those) and ballots. He has vast experience and knowledge of equipment/accessories covered under the scope of standard 2 as well as the detail contained in NSF standards.

Task Group Chair Update

Task Group Name	TG on Food Shields
Chair	Pep Matus
Date	08/14/19

Members:

Name	Category (user, industry, public agency)	Member/observer
Al Alderman	Industry	Observer
Rodney Anderson	Industry	Observer
Michael Perez	User	Member
Andrew Padden	Industry	Member
Dave Van Otterloo	Industry	Observer
Tony Gagliardi	User	Member
Randy Lines	Industry	Member
Jeff Differt	Industry	Observer
John Scanlon	Industry	Member
Burl Finkelstein	General Interest	Observer
Gilad Gabbay	Public Health / Regulatory	Observer
Anthony Carotenuto	User	Observer
Kelli Fall	General Interest	Observer
Mike Kohler	General Interest	Member
Sarah Krol	General Interest	Observer
Amanda Zeoli	General Interest	Observer
Al Rose	General Interest	Secretariat
Chris Cummings	Industry	Observer
Brian Ozment	Industry	Member
Scott Edlein	Industry	Observer
Tom Johnson	General Interest	Member
Dr. Robert Powitz	General Interest	Member
Connie Dickson	User	Member
Jon Murray	General Interest	Observer
Gary Maxon	Industry	Member
Thomas McNeil	User	Member
Pep Matus	Industry	Group Chair
Peter Roever	Industry	Observer

Task Group Chair Update

Open Issue Papers:

Issue Paper # FE-2018-10	
Summary	**Status**
Revision of food shield standard to change self-service food shield accessibility and relax the current standard back to the pre-NSF/ANSI 2-2008 standard.	Discussion was started in one TG meeting on July 16, 2019. TG agreed to reopen the topic on self-service food shields and agreed that the discussion should continue.

Closed Issue Papers:

Issue Paper #		
Summary	**Status of completion (completed, tabled, etc)**	**Probable Publication Date**
None at this time.		

Short Status of where task group has been since prior JC Face-to-Face:

The TG held one meeting on July 16, 2019. After review of the issue paper, it was determined by the TG that the topic of self-service food shields and accessibility should be continued.

It was agreed during the TG meeting that anthropometrical data will be further reviewed in further meetings do determine if the standard should be modified.

The secretariat and TG agreed to schedule another meeting following the 2019 JC Annual Meeting.

Task Group Chair Update

Task Group Name	FE Task Group on Figures & Diagrams
Chair	John Scanlon
Date	8/9/19

Members:

Name	Category (user, industry, public agency)	Member/observer
John Scanlon	Industry (Hatco corporation)	Member - Chair
Mr.Jeff Burnett	Industry (Perlick)	Member
Mr. Michael Perez	User (Baring Industries) (JC Chair)	Observer
Mr. Robert Casey	User (Publix)	Member
Ms.Tiffany Curry	General interest (Franke Foodservice Soluions, Inc.)	Member
Mr. Frank Cuaderno	Industry (Mars Air)	Member
Mr. Mike Kohler	User (NSF)	Member
Mr. Burl Finkelstein	General interest (Kason industries)	Member
Mr. David Johnson	Industry (Berner Corporation)	Member
Mr. Pep Matus	Industry (Versa-guard)	Member
Mr. Nick Mazzino	Industry (Vitamix)	Member
Mr. Brent Miller	User (Dairy Queen)	Member
Mr. Eric Moore	General interest (Testo Solutions USA, Inc.	Member
Mr. Jon Murray	General interest (Structural Concepts Corp.)	Member
Mr. Syed Rizvi	Industry (Cornelius, Inc)	Member
Mr. Stephen Shaefer	General interest (Hoshizaki America, Inc.)	Member
Mr. Charlie Souhrada	General interest (NAFEM)	Member
Ms. Amanda Zeoli	Secretariat (NSF)	Observer

Open Issue Papers:

Task Group Chair Update

Issue Paper #	
Summary	**Status**
No issue Paper. This task submitted at the 2018 JC Meeting during open discussion.	Open

Closed Issue Papers:

None

Short Status of where task group has been since prior JC Face-to-Face:

On 2-1-19, the task group on Figures and Diagrams met to discuss the goals of the group. The discussion consisted of the strategy for tackling the project, ongoing meeting format, and a cadence for future meetings. As a guide for the group, J. Scanlon proposed the following text as a definition of scope:

The purpose of this task group is to add consistency, clarity, and understanding to the figures and drawings in existing Food Equipment standards, by updating and modernizing those utilizing established CAD programs.

There are 57 individual figures to update across all standards.
The plan is to initiate the project with the drawings in standard two, because it has the majority of drawings, and then continue with drawings in other standards, based on decreasing number of drawings in each standard.

Mike Kohler has been working directly with the Graphic Designer, Katie Fogleboch at Birdbrook Design. On May 13, Mike shared the first batch of revised prints with the group. The group reviewed and discussed these on 6/14/19.

The continuing strategy is for group to review the updated prints in batches, and bring any concerns or comments to the subsequent meeting. This will continue until all figures have been redrawn.

TAB D2

Standard 3 –
Warewashing Equipment

Task Group Chair Update

Task Group Name	TG on Warewash Equipment, NSF/ANSI 3
Chair	Joel Hipp
Date	August 21, 2019

Members:

Name	Category (user, industry, public agency)	Member/observer
Joel Hipp	Industry	Member - Chair
Russell Payzant	Industry	Member
John Hockaday	Industry	Member
Luis Rodriguez	Public Health / Regulatory	Member
Gideon Katz	Industry	Member
Tony Gagliardi	Public Health / Regulatory	Member
Andrew Jensen	Industry	Member
Girvin Liggans	Public Health / Regulatory	Member
Christopher Winkler	Industry	Member
April Gravelle	Public Health / Regulatory	Member
Dwayne Becknell	Industry	Member
Mike Kohler	User	Member
Michéle Samarya-Timm	Public Health / Regulatory	Member
Al Rose	General Interest	Observer – Secretariat

Open Issue Papers:

Issue Paper # FE-2008-5	
Summary	**Status**
Proposed additional food soil load test for rinseability (soil redeposition test).	Challenge is finding quantitative measure of rinse water effectiveness. ATP test method scratched. Sesame seed test from EU scratched (EN50593). NSF team working on colorimeter test method.

Issue Paper # FE-2017-10	
Summary	**Status**
Proposal to allow chemical sanitizing solutions that are used in accordance with, and at concentrations in compliance with EPA registered label use instructions.	Two straw ballots. First yielded substantive negative resulting in rewording and new straw ballot. Second straw ballot passed in May. Issue will now be placed on JC ballot.

Task Group Chair Update

Closed Issue Papers:

Issue Paper # FE-2017-X	
Summary	**Status**
Cutlery cleaning system using sterile corncob abrasive and heated dry requested to be NSF Certified.	Proponent withdrew issue due to complexity of meeting NSF requirements.

Issue Paper # FE-2017-3	
Summary	**Status**
Proposal to add wording to protect air gaps from "contamination" rather than "suds, spray, splash and flooding".	TG straw ballot passed. JC ballot passed. Updated wording includes bullet format and clarification that air gap need not be readily visible from outside the machine.

Short Status of where task group has been since prior JC Face-to-Face:

Air gap updates and normative updates passed JC ballots resulting in NSF3-2019 published in April.

TG meetings held April 30th & July 9th.

Rinseability test – NSF team experimenting with colorimeter on glasses. Hand-held device can measure specular included (SPIN) and specular excluded (SPEX) reflected light in 15-30 seconds. Cost is approximately $4,300. Challenge is to find suitable soil and refine the test method. In addition, goal is to set limits such that currently Certified models will not be disqualified.

Chemical Sanitizing Solutions – Wording to be on JC ballot:

7.2.3 The type of chemical sanitizing solution specified by the manufacturer shall be among those listed in 40 CFR §180.940. The recommended use concentrations shall comply with Table 6.1. Recommended use concentrations of sanitizers not included in Table 6.1 shall comply with part (a) of 40 CFR §180.940, or shall comply with the registered use label applicable to the authority having jurisdiction, such as EPA or Health Canada.

Next meeting - September

TAB D3

Standard 4 – Commercial Cooking, Rethermalization and Powered Hot Food Holding, and Transport Equipment

Task Group Chair Update

Task Group Name	TG on Hot Food Equipment (NSF/ANSI 4)
Chair	Jonathan Brania
Date	July 17, 2019

Members:

Name	Category (user, industry, public agency)	Member/observer
Jonathan Brania	User	Member, Chair
Al Rose	General Interest	Observer, Secretariat
Tiffany Curry	Industry	Member
Jeff Differt	Industry	Member
Massoud Neshan	Industry	Member
Syed Rizvi	Industry	Member
Willard Sickles, PE	Industry	Member
Swati Bhatt	Public Health / Regulatory	Member
Sara Burton-Zick	Public Health / Regulatory	Member
Tony Gagliardi	User	Member
Beth Glynn	User	Member
Mike Kohler	User	Member
Thomas McNeil	User	Member
**********	**********	**********
Amanda Zeoli		Observer
Chris Boryca	General Interest	Observer
Steve Combs	General Interest	Observer
Kelli Fall	General Interest	Observer
Sarah Krol	General Interest	Observer
Lee Moomaw	General Interest	Observer
Eric Moore	General Interest	Observer
Jon Murray	General Interest	Observer
Michael Perez	General Interest	Observer
Dr. Robert Powitz	General Interest	Observer
Ann Willems	General Interest	Observer
Jim Wismar	Industry	Observer
Shayna Dye	Public Health/Regulatory	Observer
Gilad Gabbay	Public Health/Regulatory	Observer
J. Julamon	Public Health/Regulatory	Observer
Susan Sutherland	Public Health / Regulatory	Observer
Giorgio Beretta	User	Observer
Jim Brady	User	Observer
Nicholas Unger	User	Observer

Task Group Chair Update

Open Issue Papers:

Issue Paper #	
Summary	**Status**
FE-2012-3: Merchandisers – Energy Efficiency A recent JC ballot yielded 22 affirmative votes, 3 negative votes, 1 abstention, and many comments. The task group has met three times since the ballot and many of the comments have been addressed, although a few still remain.	The Task Group is in the process of reviewing and resolving comments.
FE-2016-4: Food warming language clarification Issue to better clarify when the new label for food warming equipment must be applied and when testing can be waived. Many products are identified for warming, but only a few should need the label based on their exclusive use with nonpotentially hazardous foods.	Wording revised based on TG discussion. JC ballot closes on 7/22. Status as of 7/17: 23:0:0 with no comments.
FE-2018-6: Backflow prevention boilerplate Boilerplate revision for backflow prevention devices, to add air gaps as an acceptable option. The issue was discussed with objections from TG meeting attendees.	Passed JC ballot: 30:0:0 with no comments.
FE-2018-15: Milk tubing of cappuccino machines Proposed updates for milk tubing requirements of cappuccino machines, clarifying when such tubing is exempt from performance test requirements.	Passed Joint Committee ballot (28:0:0) with one editorial comment.

Closed Issue Papers:

Issue Paper #		
Summary	**Status of completion (completed, tabled, etc)**	**Probable Publication Date**
NONE		

Short Status of where task group has been since prior JC Face-to-Face:

The Task Group for Hot Food Equipment has met two (2) times since the last Joint Committee meeting.

TAB D4

Standard 7 – Commercial refrigerators and freezers

Task Group Chair Update

Task Group Name	Standard 7
Chair	Tony Gagliardi
Date	August 19, 2019

Members:

Name	Category (user, industry, public agency)	Member/observer
Tony Gagliardi	Consultant (Public Health)	Member - Chair
Mike Kohler	NSF International (User)	Member
Jon Murray	Structural Concepts Corp. (Industry)	Member
Dipak Negandhi	Manitowoc Foodservice (Industry)	Member
Jeff Bauman	Continental Refrigeration (Industry)	Member
Thomas Jumalon	Wake Co. Health Dept. (P. H.)	Member
Jon Murray	Structural Concepts Corp. (Industry)	Member
Jonathan Brania	UL, Inc. (User)	Member
Brent Miller	Dairy Queen (User)	Member
Fred Minelli	Hill Phoenix (Industry)	Member
StephenSchaefer	Hoshizaki America, Inc (Industry)	Member
Massoud Neshan	Southern Case Arts (Industry)	Member
Bill Larson	Nor-Lake, Inc. (Industry)	Member
Gary Maxon	The Delfield Co. (Industry)	Member
Jim Brady Bill Sickles Alyssa Spradley	WAWA, Inc InterMetro Industries (Industry) NE Tri County Health District (P.H.)	Member Member Member
Al Rose	NSF International (General Interest)	Observer – Secretariat
Guy Senter	Bally Refrigerated Boxes, Inc. (G. I)	Observer
Jeff Bauman	Continental Refrigerator (G.I.)	Observer
Sara Burton-Zick	Dupage Co. Health Dept. (P. H.)	Observer
Girvin Liggans	FDA (P. H.)	Observer
John Scanlon	Hatco Corp. (P. H.)	Observer
James Patterson	Health Learning (User)	Observer
James O'Donnell	Hussman Corp. (Industry)	Observer
Steve Combs	International Cold Storage(G.I.)	Observer
Eric Brasseur	Little Caesars Enterprises (User)	Observer
Cheryl Appell	Manitowoc Foodservice (Industry)	Observer
Larry Eils	NAMA (Industry)	Observer
Anthony Carotenuto	Navy and Marine Corps Public Health Center (User)	Observer
Kelli Fall	NSF International (G.I.)	Observer
Sarah Krol	NSF International (G.I.)	Observer

Task Group Chair Update

Ann Willems	NSF International (G.I.)	Observer
Donald Mers	Ohio Dept of Agriculture (G.I.)	Observer
Robert Powitz	R. W. Powitz and Assoc. (P. H.)	Observer
Victor Anderson	Structural Concepts Corp. (Industry)	Observer
Mary Dane	Traulsen, & Co. (G.I.)	Observer
Michael Perez	Baring Industries (G.I.)	Observer
Mike Anthony	U of Michigan (G.I.)	Observer
Thomas Jumalon	Wake Co Health (P. H.)	Observer
Paul Klouse	Southern Nevada Health District (P. H.)	Observer
Jim Godiska	Follett Corp. (G. I.)	Observer
Eric Moore	Testo Solutions, USA, Inc. (G.I.)	Observer
Mark Sanford	Unified Brands (User)	Observer
Keith McKowen	U. of Michigan (G.I.)	Observer
Lee Moomaw	Intertek (G.I.)	Observer
Bob Corrao	J.M.Smucker Co. (Industry)	Observer
Amanda Zeoli	NSF International	Observer

Open Issue Papers:

Summary	Status of completion (completed, tabled, etc)	Probable Publication Date
7i17-Revising standards to deal with multi-zone refrigeration units and ambient air temperature requirements for performance testing.	Issue Paper was discussed in teleconference 7/25/19 no resolutions as yet.	Unknown

Summary	Status of completion (completed, tabled, etc)	Probable Publication Date
7i20r1-Revising the Standards to add drains to the interior of service and display refrigerators	Approved by TG and sent to the JC	Unknown

Task Group Chair Update

Summary	Status of completion (completed, tabled, etc)	Probable Publication Date
7i21r2- Revising the standards to deal seams within a refrigerated cabinet	Resolved negative comment on ballot. Revision approved sent to CPHC	Unknown

Summary	Status of completion (completed, tabled, etc)	Probable Publication Date
7i18- No load vs ASHRAE 72 Performance Testing	Issue discussed and withdrawn by proponent	NA
Summary	**Status of completion (completed, tabled, etc)**	**Probable Publication Date**
7i21r2- Revising the standards to deal with seams within a refrigerated cabinet	Resolved negative comment on ballot. Revision approved sent to CPHC	Unknown
Summary	**Status of completion (completed, tabled, etc)**	**Probable Publication Date**
7i22- Revising the standards to Update Normative References	Revision approved sent to CPHC	Unknown

Short Status of where task group has been since prior JC Face-to-Face:

This task group was a bit busier this year having 3 teleconferences since the last meeting of the Joint committee. Several issues were resolved and sent to the CPHC.

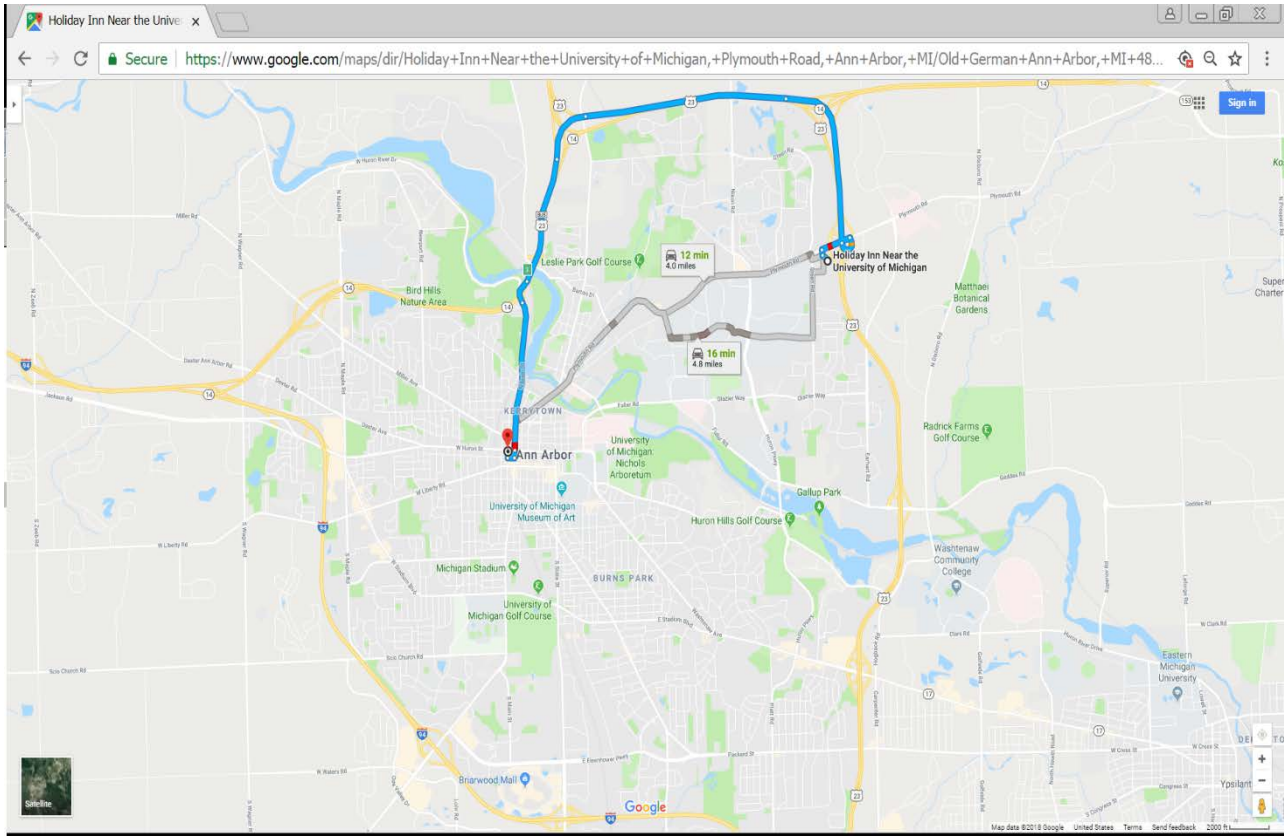
Task Group Chair Update

A discussion of labeling for multi zone refrigerators was initiated at the last teleconference on June 25, 2019. Several ideas were put forward in the meeting but no resolutions were decided on. Discussions will continue in the near future.

CDC Vessel Sanitation Presentation

CDR Luis O. Rodriguez

Reception at Old German



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FE Joint Committee Reception
- Wed, August 21
- 7:30 – 10:00 pm
- Shuttles provided to and from

TAB D5

Standard 12 –
Automatic Ice Making Equipment

TAB D6

Standard 25 –
Vending machines for food and beverages

Task Group Chair Update

Task Group Name	TG on Vending Machines
Chair	Dipak J. Negandhi, P.E.
Date	July 31, 2019

Members:

Name	Category (user, industry, public agency)	Member/observer
D. Negandhi	Industry	Member - Chair
J. Collins	Industry	Member
T. Gagliardi	User	Member
P. McCrory	User	Member
D. Gallman	Industry	Member
G. Liggans	Public Health/ Regulatory	Member
V. Siede	Trade Association	Member
S. Schaefer	Industry	Member
B. Corraro	Industry	Member
L. Eils	Industry	Member
K. Fall	General Interest	Member
B. Laird	Industry	Member
T. Johnson	User	Member
T. McNeil	User	Member
J. Brania	General Interest	Member
M. Kohler	General Interest	Member
Al Rose	General Interest	Observer – Secretariat

Open Issue Papers:

Issue Paper #	
Summary	**Status**
Issue Paper to harmonize NAMA standards for Vending Machines with NSF-25	Draft of harmonized NSF 25 standard was reviewed at the TG meeting on July 29, 2019. It is scheduled for a straw ballot of the TG after revision to the draft are complete

Closed Issue Papers:

Issue Paper #

Task Group Chair Update

Summary	Status of completion (completed, tabled, etc)	Probable Publication Date
NONE		

Short Status of where task group has been since prior JC Face-to-Face:

1. Over the past 2 years, Items unique to each standard were identified and then discussed / reviewed by the TG.
2. Many items of NAMA standard are addressed in other NSF Standard (NSF-2, 7, 51)
3. Additions and changes to NSF-25, based on each of the NAMA section (100 through 900) were approved by a straw ballot of the TG
4. A draft of harmonized NSF-25 was completed in June 2019 and reviewed at the TG meeting on July 29, 2019. This is expected to go for TG straw ballot in 2019Q3

TAB D7

Standard 51 –
Food Equipment Materials

Task Group Chair Update

Task Group Name	Food Equipment Materials
Chair	Bill Sickles
Date	August 22, 2019

Members:

Name	Category (user, industry, public agency)	Member/observer
Swati Bhatt	Public Health / Regulatory	Member
Jim Brady	User	Observer
Rex Brandt	Industry	Observer
Jonathan Brania	User	Member
Jeff Burnett	Industry	Observer
Sara Burton-Zick	Public Health / Regulatory	Member
Steve Combs	General Interest	Observer
Kelli Fall	General Interest	Observer
Burl Finkelstein	Industry	Member
Tony Gagliardi	User	Member
Jim Godiska	General Interest	Observer
Eric Halberg	Industry	Observer
Andreas Helm	Trade Association	Observer
Joel Hipp	Industry	Observer
Tom Johnson	General Interest	Observer
J. Jumalon, R.E.H.S.	Public Health / Regulatory	Observer
Michael King	Trade Association	Observer
Mike Kohler	User	Member
Sarah Krol	General Interest	Observer
James Leonard, MPH, LEHP	User	Observer
Girvin Liggans	Public Health / Regulatory	Observer
Thomas McNeil	User	Observer
Danielle Melaragno	User	Observer
Jon Murray	General Interest	Observer
Dipak Negandhi, PE	Industry	Member
Massoud Neshan	Industry	Member
Michael Perez	User	Member
Robert Powitz	Public Health / Regulatory	Observer
Allan Rose	General Interest	Secretariat
Michéle Samarya-Timm	Public Health / Regulatory	Member

Stephen Schaefer	General Interest	Member
Willard Sickles, P.E.	Industry	Group Chair
Joshua Spencer	User	Observer
Steve Tackitt	Public Health / Regulatory	Member
Joe Wallace	Industry	Member
Ann Willems	General Interest	Observer
Jeff Wright	Industry	Member
Amanda Zeoli	General Interest	Observer

Task Group Chair Update

Open Issue Papers:

Issue Paper # FE-2018-7 Glass in Bi-Metal Thermometers	
Summary	**Status**
Request from Mingle Instrument Limited to revise the test requirements for glass in thermometers. The claim is no thermometer glass will pass the current requirements. Issue Paper presented at 2018 JC meeting.	Under review by TG. TG is considering a rewrite to the standard to state: “glass tested must be same thickness as the glass used in manufacturing.” Then circulate language to thermometer manufacturers for comments.

Task Group Chair Update

Closed Issue Papers:

Issue Paper # FE-2015-8		
Summary	**Status of completion**	**Probable Publication Date**
Added new definition to NSF 170 for the term “Heated Organic Coating.”	TG Straw Ballot passed November 2018; JC Ballot passed December 2018; CPHC Ballot passed March 2019.	August 2019

Issue Paper # FE-2015-6		
Summary	**Status of completion**	**Probable Publication Date**
New Section added to NSF 51, “4.2.6 Solid Surface Materials”; and added “solid surface material” definition to NSF 170.	TG Straw Ballot passed December 2018; JC Ballot passed January 2019; CPHC Ballot passed March 2019.	August 2019

Issue Paper # FE-2019-4		
Summary	**Status of completion**	**Probable Publication Date**
Removed the current “surface cleanability” reference from Section 5.1 and removed Section 7 Surface Cleanability (Test Method and Acceptance Criteria) from NSF 51.	TG Straw Ballot passed April 2019; JC Ballot passed May 2019; CPHC Ballot passed June 2019.	September 2109

Short Status of where task group has been since prior JC Face-to-Face:

Pushed to resolve negative comments on ballots and get ballots through the CPHC.

After removing the current surface cleanability test from Sections 5.1 and 7 of NSF 51, several comments were received about what replaces it. Is something new required?

Task Group Chair Update

Backup info:

FE-2015-8 Heated Organic Coating: NSF 170 Glossary of Food Equipment Terminology:

3.xxx Heated Organic Coating: An organic coating applied to a surface where operating temperatures of the appliance may result in blistering, softening, or other heat-related degradation of the coating.

> ***Rationale****: the creation of a definition to support the newly created term for Heated Organic Coating in section 6.2.2.4 of Standard 51.*

FE-2015-6 Solid Surface Materials: NSF 51 Food Equipment Materials:

4.2.6 Solid Surface Materials

4.2.6.1 Solid surface materials shall meet food zone requirements.

4.2.6.2 Solid surface materials shall be composed of uniform material throughout.

> ***Rationale:*** *Food zone requirements are applicable to all solid surface materials to avoid potential misuse in the field. If the material meets food zone requirements it will be suitable for use in all zones without the need to choose the correct product for the given application. A requirement for the material to be uniform throughout eliminates the possibility of multilayered, dissimilar materials that may be more prone to separation and failure.*

NSF 170 Glossary of Food Equipment Terminology:

3.xxx solid surface material: a solid material with uniform composition throughout used in the manufacture of equipment surfaces.

NOTE - Solid surface materials include polyester, acrylic, engineered stone and quartz/resin based materials

> *Rationale: this definition is proposed for adding clarity to the newly proposed language for Solid Surface Materials in Standard 51.*

Task Group Chair Update

FE-2019-4 surface cleanability: NSF 51 Food Equipment Materials:

5.1 Materials shall be smooth and easily cleanable.

~~If a material is textured so that it may hinder the removal of soil during cleaning, the material shall meet the surface cleanability requirements in 7.~~

~~7 Surface cleanability~~

~~7.1 Test method~~

~~When required by this Standard, the surface cleanability of a textured material shall be determined by quantification of the amount of applied soil that remains on a material sample after cleaning. Four material test plaques (5.0 x 5.0 in [130 x 130 mm]) shall be washed with a non-ionic, low foaming, powdered mechanical washer detergent and water at 162 ± 2 °F (72 ± 1 °C) and shall be air dried. A standardized synthetic lard comprised of glycerol trioleate (62.5%), glycerol tristearate (37.5%), and trace amounts of 14C-labeled glycerol trioleate (0.845 µCi/g of synthetic lard) and 14C-labeled stearic acid (0.514 µCi/g of synthetic lard), shall be applied to the test plaques. The lard shall be heated to a liquid state, and 200 µL shall be applied to each of four equal quadrants on each test plaque. The lard shall be spread in a uniform layer onto the quadrants while under an infrared heat source to maintain the lard in a liquid state. The mass of soil on each quadrant shall be quantified using a beta radiation counting system; each quadrant shall have 20 ± 5 mg applied to its surface. The soiled test plaques shall be washed in a single-temperature, total-dump dishwashing machine having the following characteristics:~~

…

~~7.2 Acceptance criteria~~

~~The average residual soil on the quadrants shall not exceed the predetermined control value for the zone in which the material is located.~~

~~Zone~~	**~~Control value~~**	**~~Examples~~**
~~food zone~~	~~30 µg~~	~~stainless steel – No. 3 (100 grit) finish~~
~~heated food zone~~	~~1750 µg~~	~~cast iron~~
~~ice bin materials~~	~~650 µg~~	~~rotationally molded polyethylene~~
~~splash and nonfood zone~~	~~220 µg~~	~~hot rolled steel~~

TAB D9

Task Groups having no action since previous Face-to-Face

Task Group Chair Update

Task Group Name	TG on “NSF/ANSI Standard 5”
Chair	J. Wallace
Date	07/09/2019

Members:

Name	Category (user, industry, public agency)	Member/observer
J. Wallace	Industry	Member - Chair
Al Rose	General Interest	Observer – Secretariat

Open Issue Papers:

Issue Paper #	
Summary	**Status**
	Example: Task Group is close to submitting the proposed changes to the Joint Committee for approval.

Closed Issue Papers:

Issue Paper # 5i9r1		
Summary	**Status of completion (completed, tabled, etc)**	**Probable Publication Date**
Note change in Section 7.	CPHC Approved, March 2019	???

Short Status of where task group has been since prior JC Face-to-Face:

During the 2018 JC meeting, two issue papers were submitted, revising or removing “Notes” found in Section 5 and Section 7. The Section 5 revision was approved by the JC but the Section 7 note had to be revised. The revision was submitted and approved by the JC and CPHC approval was obtained in March, 2019.

Task Group Chair Update

Task Group Name	Dispensing Equipment
Chair	Rex W. Brandt
Date	7/11/19

Members:

Name	Category (user, industry, public agency)	Member/observer
Rex Brandt	Industry	Member - Chair
Cheryl Appell	Industry	Member
Eric Brasseur	User	Member
Bob Corrao	User	Member
Shayna Dye	Public Health / Regulatory	Member
Randy Dyer	User	Member
Tony Gagliardi	User	Member
Nick Greenway	Industry	Member
Andreas Helm	Trade Association	Member
Joel Hipp	Industry	Member
Tom Johnson	User	Member
Mike Kohler	User	Member
Girvin Liggans	Public Heath /Regulatory	Member
Brent Miller	User	Member
Stephen Schaefer	Industry	Member
Al Rose	General Interest	Observer – Secretariat
Only voting members are shown above, observers who showed interest in this TG were left off to keep list manageable.		

Open Issue Papers:

None

Closed Issue Papers: (None since last JC meeting)

Issue Paper # FE-2017-05	
Summary	**Status**
Proposed additional language add to Instruction plate based on new technology that allows cleaning and sanitization procedures to satisfy this requirement if incorporated into electronic display. (6i13r2)	CPHC balloting closed 6/2218, passed (17/0/0)

Task Group Chair Update

Issue Paper # FE-2017-14	
Summary	**Status**
Proposed change to “Dispensing lockout manual cleaning and sanitization frequency”, length of time for prepackage product, change from 42 days to 92 days. (6i14r3)	CPHC balloting closed 11/12/18, passed (15/0/0)

NSF Standard 6 – 2018 Dispensing Freezers was released in December 2018 with revised language and requirements which came from Issue Paper FE-2017-05 and FE 2017-14.

No issue papers are on file which would require TG to work on at this time.

Task Group Chair Update

Task Group Name	FE Task Group on Air Curtains
Chair	John Scanlon
Date	8/9/19

Members:

Name	Category (user, industry, public agency)	Member/observer
John Scanlon	Industry (Hatco corporation)	Member - Chair
Mr. Kirk Northcutt	Industry (Auto-Chlor Systems)	Member
Mr. Michael Perez	User (Baring Industries) (JC Chair)	Observer
Mr. David Johnson	Industry (Berner International Corp.)	Member
Mr. Tony Gagliardi	Public Health	Member
Mr. Frank Cuaderno	Industry (Mars Air)	Member
Mr. Mike Kohler	User (NSF)	Member
Mr. Steve Williams	General interest (NSF)	Member
Mr. Thomas McNeil	User (U.S. Army)	Member
Mr. Jonathan Hunt	Industry (Williams Comfort products)	Member
Mr. Allan Rose	Secretariat (NSF)	Observer

Open Issue Papers:

Issue Paper #	
Summary	**Status**

Closed Issue Papers:

Issue Paper # FE-2011-6		
Summary	**Status of completion (completed, tabled, etc)**	**Probable Publication Date**

Task Group Chair Update

Revisions were accepted and published on July 21, 2017	Complete.	Published 7/21/17

Short Status of where task group has been since prior JC Face-to-Face:

On 10-28-14 the task group on Air Curtains met to discuss the details of **Issue Paper FE-2011-6** regarding the performance of Air Curtains as defined in NSF Standard 37 Section 6.

The two areas of concern in the standard raised by the Issue Paper are:

1.) The wording of the Standard allows for designs that can have areas of low velocity, in the air curtain – most commonly where the blower motor is located at the upper part of the curtain.

2.) The wording describing the test guidelines is not conclusive enough to prohibit very low velocities at the extreme sides of the air curtain

Due to priority changes within NSF, the Task Group has not meet since February of 2015. The group communicated requested changes via e-mail and straw ballots, leading to a successful publication of the revised standard in July 2017.

There is one remaining task, to remove the definitions moved to Standard 170 from Standard 37. Since this is not substantive, I suggest this be done without convening the group.

NAFEM Presentation

Charlie Souhrada, CFSP

TAB SET F

New Issue Papers, Information Papers and Interpretation Requests

TAB F1

Issue Paper FE-2019-05 - Section 5.4 Cover Requirements

Michael Perez

Joint Committee Issue Paper

NSF Standard(s) Impacted: NSF/ANSI 21 - 2015

Background:

Provide a brief background statement indicating the cause and nature of concern, the impacts identified relevant to public health, public understanding, etc, and any other reason why the issue should be considered by the Committee. Reference as appropriate any specific section(s) of the standard(s) that are related to the issue.

The purpose of this issue paper is to propose revise language for section 5.4 (cover requirements) in Standard 21.

In May 1996, section 5.4.2 was rewritten and an informative note added:

5.4.2 Thermoplastic refuse containers used primarily outdoors shall have a cover that, when in place, prevents water from entering the container opening.

NOTE – Thermoplastic refuse containers used primarily indoors are exempt from this requirement. Covers with swinging-closure mechanisms are acceptable for indoor use.

Rationale: ***Clarification of intent. The NSF Joint Committee on Food Equipment elected to allow covers with swinging-closure mechanisms.***

In 2018, a ballot for 21i7r1 (issue paper FE-2018-09) sought to change the informative note into a normative, numbered section in the standard. A negative ballot cast by a CPHC member and a comment from a JCFE member noted several flaws in section 5.4.

Subsequently, I have withdrawn issue paper FE-2018-09. This new issue paper is submitted to revise all of section 5.4.

Recommendation:

Clearly state what action is needed: e.g., recommended changes to the standard(s) including the current text of the relevant section(s) indicating deletions by use of ~~strike-out~~ and additions by highlighting or underlining; e.g., reference of the issue to a Task Group for detailed consideration; etc.

5.4 Cover requirements

~~**5.4.1 When in place, the cover shall overlap and continuously contact the container opening.**~~

~~**5.4.2 Thermoplastic refuse containers used primarily outdoors shall have a cover that, when n place, prevents water from entering the container opening.**~~

~~**NOTE: Thermoplastic refuse containers use primarily indoors are exempt from this requirement. Covers with swinging closure mechanisms are acceptable for indoor use.**~~

~~**5.4.3 The cover shall minimize exterior gnawing edges. This requirement shall not apply to raised reinforcing members, decorative features, or lifting devices that do not have a common wall with the cover.**~~

Joint Committee Issue Paper

~~**5.4.4 The cover shall be designed and manufactured so that it provides for secure attachment to the container. The disengagement of the attachment device (for removable covers) shall permit the removal of the cover with one hand. Hinged covers are acceptable provided that they can be opened with one hand.**~~

5.4.1 When provided and in place, a cover shall:

- **Overlap and continuously contact the container opening; and**
- **Prevent water from entering the container opening; and**
- **Minimize exterior gnawing edges (This requirement shall not apply to raised reinforcing members, decorative features, or lifting devices that do not have a common wall with the cover); and**
- **Be designed and manufactured so that it provides for secure attachment to the container.**

Rationale: Limiting a use application such as if a thermoplastic refuse container is used indoors or outdoors is outside the scope of certifying criteria. Requiring a cover, whether for indoor or outdoor use, may constitute an unreasonable condition when a thermoplastic refuse container is placed inside an enclosure manufactured by a third party. However, when offered, a cover must meet minimum requirements.

Supplementary Materials (photographs, diagrams, reports, etc.):
If not provided electronically, the submitter will be responsible to have sufficient copies to distribute to committee members.

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Signature*: Michael Perez
Company: Baring Industries
Telephone Number: (954) 327-6752 E-mail: michael.perez@baring.com
Submission Date: 05-03-2019

Please submit to: Al Rose, arose@nsf.org

**Type written name will suffice as signature*

TAB F2

FE-2019-06 - Slotted Fasteners in Marine Equipment

Luis Rodriguez

Joint Committee Issue Paper

NSF Standard(s) Impacted: NSF/ANSI 2

Background:

Provide a brief background statement indicating the cause and nature of concern, the impacts identified relevant to public health, public understanding, etc, and any other reason why the issue should be considered by the Committee. Reference as appropriate any specific section(s) of the standard(s) that are related to the issue.

A prohibition for slotted fasteners in food zones has been on the CDC Vessel Sanitation Program (VSP) Operations Manual since 2011, although their presence was cited as a violation before 2011 as a difficult to clean feature. The VSP was established in 1975 as a cooperative activity with the cruise ship industry. This program assists the cruise ship industry in fulfilling its responsibility for developing and implementing comprehensive performance-based systems to protect the health of the traveling public. The VSP conducts public health inspections on cruise ships and assist cruise lines during outbreak investigations.

Since October 1, 2011 up to September 30, 2018, VSP inspectors cited 696 times the presence of slotted fasteners in food zones as violations; 148 out of those 696 carried point deductions (21% of the times).

VSP has guidelines establishing certain standards for equipment and materials installed on cruise vessels, but VSP does not test, certify, or otherwise endorse or approve any equipment or materials used by the cruise industry. Instead, VSP recognizes certification from independent testing laboratories such as NSF International, Underwriter's Laboratories (UL), the American National Standards Institute (ANSI), and other recognized independent international testing institutions.

Many times, a food equipment can be NSF approved but still will not be fully compliant with Vessel Sanitation Program requirements, even when NSF certifications are recognized by VSP. Including a prohibition of slotted fasteners in food zones for marine food equipment will bridge the gap between NSF standard 2 and CDC/VSP requirements. This change will help tremendously the passenger vessel and cruise industry along with food equipment manufacturers and suppliers.

Recommendation:

Clearly state what action is needed: e.g., recommended changes to the standard(s) including the current text of the relevant section(s) indicating deletions by use of ~~strike-out~~ and additions by highlighting or underlining; e.g., reference of the issue to a Task Group for detailed consideration; etc.

1. NSF/ANSI 2 – Food Equipment has a section 8 "Supplemental requirements for marine food equipment". It seems like manufacturers might not be using this section and instead are trying to comply with all previous sections of the standard. If not used, perhaps is useful to delete.

2. Modify section **5.5.2** as follows:

   5.5.2 Fasteners shall be easily cleanable. Fasteners meeting this requirement include, but are not limited to, slot-head and Phillips-head screws, hex head fasteners, and flush-break pop rivets. Hex key screws and non-flush break pop rivets may be used in a splash zone or a nonfood zone provided that the heads are capped or filled. In marine equipment, do not use slotted fasteners on food zones and splash zones.

Joint Committee Issue Paper

Supplementary Materials (photographs, diagrams, reports, etc.):
If not provided electronically, the submitter will be responsible to have sufficient copies to distribute to committee members.

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Signature*: _____
Company: Centers for Disease and Prevention (CDC) / Vessel Sanitation Program (VSP)
Telephone Number: 954-356-6650 E-mail: ved8@cdc.gov
Submission Date: 6/2/2019

Please submit to: Al Rose, arose@nsf.org

**Type written name will suffice as signature*

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TAB F3

Issue Paper FE-2019-08 - NOTE in 5.1.4

Riccardo Bergamini

Joint Committee Issue Paper

NSF Standard(s) Impacted: NSF/ANSI 18 – 2016 Manual Food and Beverage Dispensing Equipment.

Background:
Provide a brief background statement indicating the cause and nature of concern, the impacts identified relevant to public health, public understanding, etc, and any other reason why the issue should be considered by the Committee. Reference as appropriate any specific section(s) of the standard(s) that are related to the issue.

1) ANTE-FACT

Ferrero has developed an electric dispenser for NUTELLA®, for which is required the sanitation certification against the standard NSF18 for USA market.
The standard requires a water-based cleaning of the machine, but given the nature of NUTELLA®, such procedure would pose greater risks than benefits.

2) PRODUCT DESCRIPTION

Nutella is suspension of solid particles in a continuous liquid medium (oil) both strictly anhydrous.
Nutella is a **low-aw product (0.3)**, **low humidity content (< 1,2%)** therefore food safety (including microbiological issues) is not affected, if the product, during its whole shelf life, is strictly kept away from water and humidity, and from any other foreign contamination source.

Ingredients: sugar, vegetable fat (palm), **hazelnuts** 13%, skimmed **milk** powder 8,7%, fat reduced cocoa 7,4%, emulsifier: lecithin (**soy** and/or sunflower), vanillin.

Storage Conditions: the product unopened should be stored in a dry place at a normal ambient temperature (e.g. from 16 to 26°C).

Organoleptic Characteristic
Appearance: pasty
Color: brown
Consistency: creamy
Odor: nut, cocoa
Taste: sweet**,** nut, cocoa

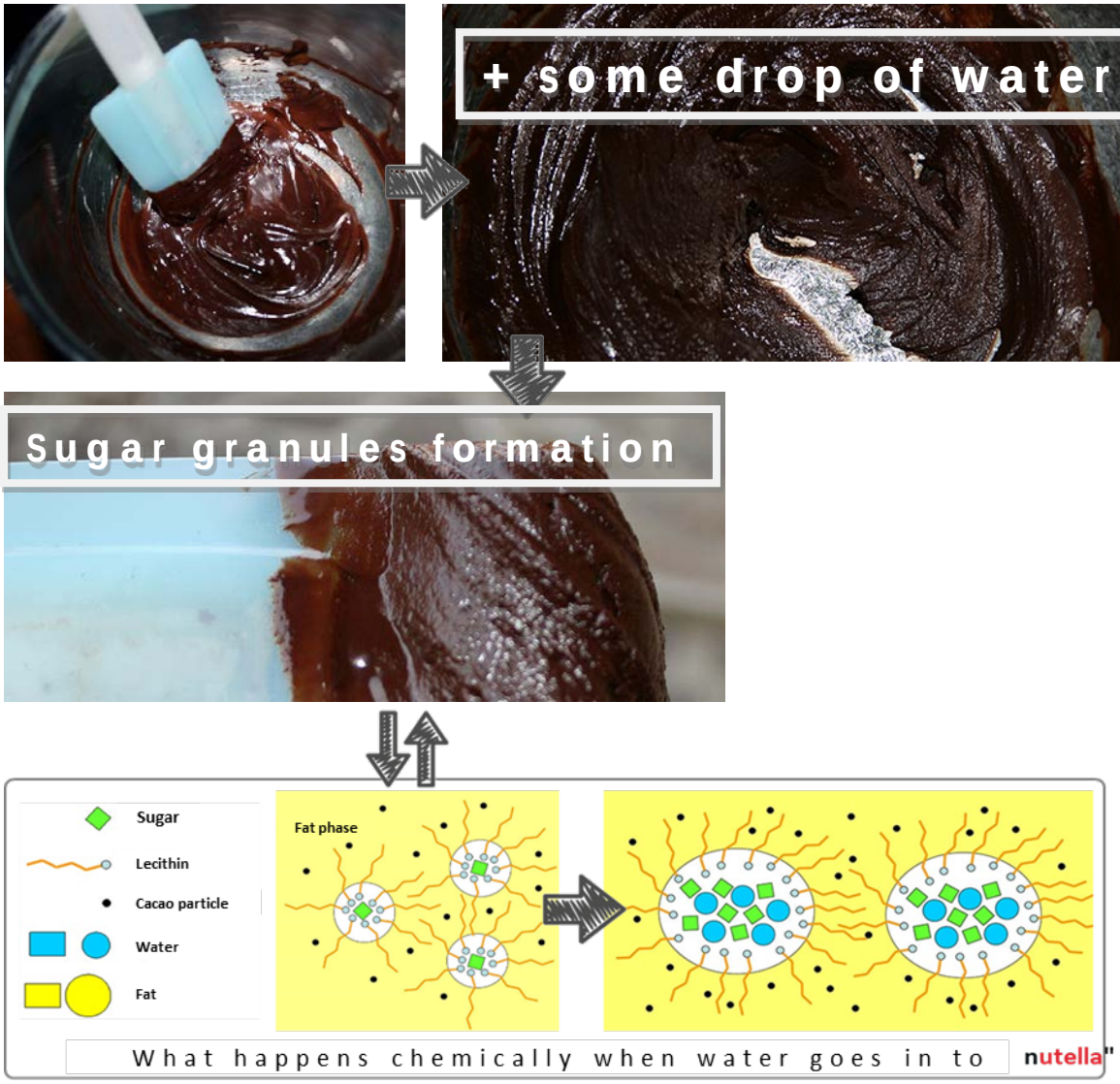
3) EFFECTS OF WATER/HUMIDITY IN CONTACT WITH NUTELLA

Water when in contact with Nutella can cause 2 major issues:

1) ORGANOLEPTIC → Texture modifications – granules formation and overall fluidity/spreadability loss
2) MICROBIOLOGICAL → Creation of favorable environmental conditions that may increase the risk of microbial growth, depending then on temperature/time exposure

1) ORGANOLEPTIC → Texture modifications

Below an example of the effect of some water drop fallen down in **Nutella**.
The cream becomes very viscous and start to "coagulate": some lumps start to appear and the texture is not fluid and not comparable to the standard texture requirements of **Nutella**.
The modification of the texture can also interfere with the rheology of the use of the product inside pipes, ducts or pumping systems.



2) MICROBIOLOGICAL → creation of environment that allows microbial growth

Definition: WATER ACTIVITY
"Water activity" (a_w) is a concept of food processing and preservation technologies that indicates the relationship between the vapor pressure of water in a certain material and the vapor pressure of pure water. From a purely descriptive point of view, **it is an index relating to the quantity of water that, in a given product, is free from particular bonds with other components, therefore,** of the quantity of water (expressed in a dimensionless value between 0 and 1) **available for chemical and biological reactions**.

Microbial proliferation
Microbial proliferation is one of the most important and dangerous causes of alteration (in the sense of unwanted spontaneous transformation) of food.
The micro-organisms to multiply, in addition to suitable temperature conditions, acidity, presence (or absence) of oxygen, availability of nutrients, etc., absolutely require water.
The presence of water, not so much in terms of quantity, as in terms of availability of water itself, can therefore determine the deterioration of a food product.
Since the aforementioned freedom translates into availability for biological and enzymatic processes that require water, the parameter water activity, although useful in a series of other various problems, enters mainly at stake when it comes to stability and safety of the foods.

Food	Typical a_w
Fresh meat	0.98
Cheese	0.97
Preserves	0.88
Salami	0.83
Dried fruit	0.76
Honey	0.75
Pasta	0.50
nutella	0.30

Nutella is an anhydrous product, with a natural aw of 0.30, and any microbial growth is inhibited.

It is, therefore, a food not to be included among the "potentially hazardous foods", as described in NSF/ANSI 170 - GLOSSARY OF FOOD EQUIPMENT TERMINOLOGY - Edition 2015 – point 3.148:
"*3) Potentially hazardous food does not include:*
….
– a food having water activity (aw) value of 0.85 or less;".

Addition of water in the system (even if aimed to "clean") could cause the increase of moisture and aw, hence increasing the possibility of a microbial growth.

4) **FERRERO EXPERIENCE**

Since the creation of Nutella, Ferrero has always had the aim of producing a safe product adopting the best technology and practices available.
In all of Ferrero plants producing Nutella, all the pipelines are securely closed and cleaned (e.g. after a stop, even of a few days) through “FLUSHING”: fresh product is pumped in the system, removing residues of the old one.
The first output is destroyed (only for organoleptic reason), and only when all the fresh product has filled the system, the production (e.g. jars filling) can start.

This practice has been effective during over 50 years of Nutella production.

Similarly, the dispenser cleaning can be obtained by pumping fresh Nutella through the system, removing leftovers from previous use, again, only with the aim to remove product that from a sensorial point of view is not “excellent” anymore, so to protect the trademark “sensorial excellence” of our product.

The dispenser is designed as a closed and sealed system, with no dead-spaces in order to avoid any accumulation exactly like our industrial lines. (as required by NSF 18 - § 5.2)
See figures 1-2-3

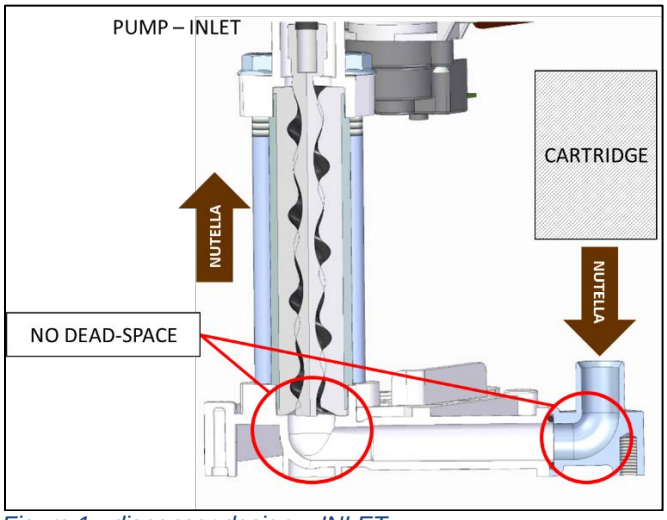


Figure 1 - dispenser design – INLET

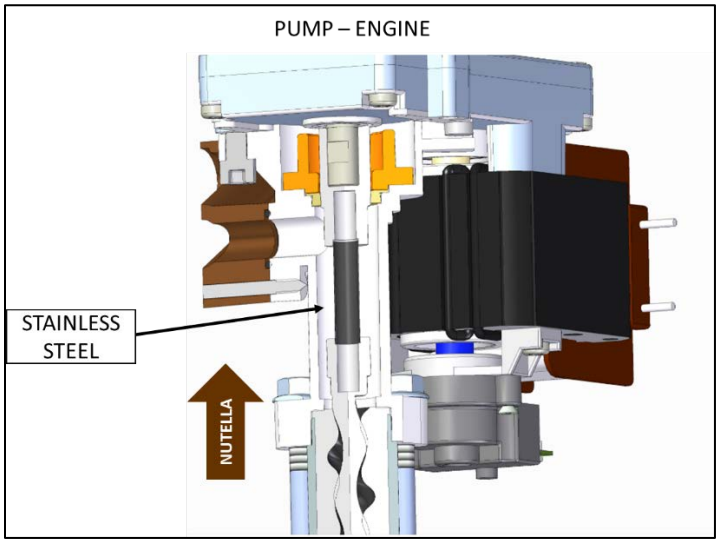


Figure 2 - dispenser design - PUMP/ENGINE

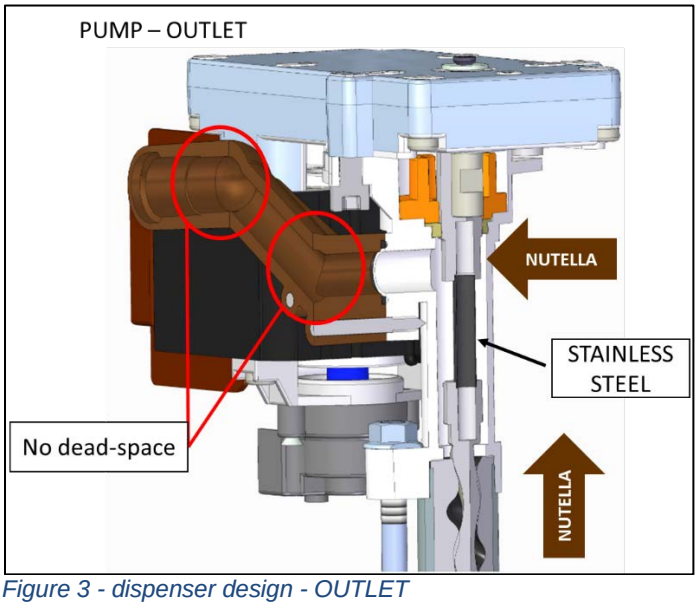


Figure 3 - dispenser design - OUTLET

5) **CONCLUSIONS**

For all the reasons mentioned above, it is strongly recommended to avoid the use of water in the cleaning/hygiene of Nutella processing equipment so that the environment can be kept as free as possible from moisture.
The use of water during cleaning can make it possible to reach levels of a_w that promote the growth of micro-organisms.
The only "cleaning" of the internal parts of the dispenser (food zone) may require is just a flush with fresh product.

Recommendation:
Clearly state what action is needed: e.g., recommended changes to the standard(s) including the current text of the relevant section(s) indicating deletions by use of ~~strike-out~~ and additions by highlighting or underlining; e.g., reference of the issue to a Task Group for detailed consideration; etc.

Ferrero requests that Nutella spread is associated to the already existing exception mentioned in the *standard NSF18 Chapter 5.1.4*

Recommended changes to the standard NSF18 Chapter 5.1.4

NOTE – In-place cleaning procedures are not required and must not be carried out in order to protect the product under food safety aspects:

- for oil distribution systems that only circulate fresh, edible oil throughout the fixed system
- for spreadable creams cacao and hazelnut based (suspension of solid particles in a continuous liquid medium (oil) both strictly anhydrous) with such characteristics [aw <0.5, sugar > 40% and fat> 20%] that do not support the growths of any microorganism, circulating in fixed systems, in which introduction of water or water-based substances is not recommended

---

EXTRACT FROM NUTELLA DISPENSER USER MANUAL section 7 "CLEANING" (draft)

NUTELLA DISPENSER FLUSHING PROCEDURE

Given that the whole system from INLET to OUTLET hold ca. 30g of Nutella the suggested cleaning procedure is the following:

CLEANING of internal part of dispenser [procedure to be followed after every stop longer than 1 week of the machine]:

1. *connect the power, wait 5-10 minutes in order to allow the system to reach the ideal temperature*
2. *flush 2 pumping of the preset "15g" dosing button (total of 30 g of Nutella to be disposed of)*
3. *start use of the machine*

Reference:
ICMSF – MICRO-ORGANISMS IN FOODS 6 – Microbial ecology of food commodities

Joint Committee Issue Paper

Supplementary Materials (photographs, diagrams, reports, etc.):
If not provided electronically, the submitter will be responsible to have sufficient copies to distribute to committee members.

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Signature*: SALVATORE RANCHETTI - (Head of Ferrero Group Quality)
(prepared by Riccardo Bergamini – Foodservice Quality Manager)

Company: FERRERO
Telephone Number: +39 344 2951964 E-mail: riccardo.bergamini@ferrero.com

Submission Date: July 19th 2019

Please submit to: Al Rose, arose@nsf.org

**Type written name will suffice as signature*

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MICRO-ORGANISMS IN FOODS

6

MICROBIAL ECOLOGY OF FOOD COMMODITIES

ICMSF

AN ASPEN PUBLICATION

MICROORGANISMS IN FOODS 6

MICROBIAL ECOLOGY OF FOOD COMMODITIES

International Commission on Microbiological Specifications for Foods (ICMSF)

Since the publication of *Microorganisms in Foods 3 (Volume 2)* technological changes in food production and processing, increases in convenience and ready-to-eat foods, the globalization of the food industry and the recognition of new pathogenic microorganisms have necessitated an updated examination of the spoilage and safety aspects of foods. The recent escalation of media interest and public concern about food poisoning has highlighted the need for thorough and coherent information to be provided to food microbiologists working in industry, government, and education.

Microorganisms in Foods 6 provides such an updated and complete assessment of the microbial properties of every major food commodity, written by acknowledged experts in the field. Each chapter examines the specific properties that affect the microbial content of different food items and the subsequent effects of harvest, transport, processing, and storage. Necessarily the means of controlling microbial content are also assessed.

The information has been prepared by the International Commission on Microbiological Specifications for Foods (ICMSF). The ICMSF was formed in response to the need for internationally acceptable and authoritative decisions on microbiological limits for foods moving in international commerce Currently the membership consists of nineteen food microbiologists from eleven countries, drawn from governmental laboratories in public health, agriculture, and food technology, from universities and from the food industry.

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EXTRACT FROM: *"ICMSF – MICRO-ORGANISMS IN FOODS 6 – Microbial ecology of food commodities"*

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B Spoilage

Chocolate. Due to its low water activity of 0.4–0.5 (Richardson, 1987) microbial spoilage of chocolate is not possible. Development of moulds on the interface of product and packaging material at very high relative humidities and for chocolate prepared with different types of sugars, thus modifying the a_w characteristics of the product, have been reported by Ogunmoyela and Birch (1984).

'Soapiness' is a defect of unsweetened or 'white' chocolate (Table 10.1) and is most common in products containing coconut and palm oil, which are rich in short- and medium-chain fatty acids. High

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C Pathogens

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In 1982/1983 an outbreak involving 245 people in the UK, again mostly children, was quickly traced to two types of chocolate bars produced in Italy and contaminated with *S. napoli* (Gill *et al.*, 1983). Contaminated water was identified as a possible source of contamination. Two outbreaks of salmonel-

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Confectionery does not support the growth of disease-causing bacteria and, only rarely, supports that of mycotoxigenic moulds. *Salmonella* will not grow at the a_w of common confections. However, if they

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D Control

Since raw beans are further processed, no microbiological analyses are performed. Mouldy beans are detected by visual inspection.

HACCP for cocoa, chocolate and confectionery products is extensively discussed in ICMSF (1988) and Cordier (1994) as well as in the International Office of Cocoa, Chocolate and Confectionery (IOCCC) Code of Hygienic Practice issued by the IOCCC (1991) with a complementary document on Good Manufacturing Practice (IOCCC, 1993).

The only identified health hazard of cocoa and chocolate is linked to contamination with *Salmonella*. Beans are a permanent but mostly unavoidable source of salmonellae, a fact confirmed by their regular detection in environmental samples (dust and residues) from raw bean storage and handling areas. Roasting represents the only barrier for *Salmonella* (CCP1; Simonsen *et al.*, 1987). In the case of cocoa powder, alkalization or dutching also represents a barrier (CCP1).

The environment can be classified as CCP2 and control

.....

will prevent *Salmonella* multiplication (Warburton *et al.*, 1993).

In chocolate factories, water plays an important role in maintaining the temperature of liquid chocolate masses in pipes and storage tanks as well as for tempering and cooling. Microleaks may lead to contamination of the product. The use of water for cleaning should be restricted to a minimum. If wet cleaning is necessary, careful drying is then essential to avoid multiplication of bacteria

absence of such a procedure, selected ingredients should be examined regularly for *Salmonella* as a further check on the adequacy of prior treatment.

Nuts and dried fruits should be examined visually for the presence of moulds. Modern nut processors use photometric equipment to sort out abnormal nuts and fruits and to perform mycotoxin analyses (Finoli *et al.*, 1994).

A safe a_w level to prevent mould growth under temperate conditions may not be possible in products to be shipped to or processed in the tropics.

Additional controls such as reduction of airborne moulds (Dragoni *et al.*, 1989), personal hygiene (Kleinert-Zollinger, 1988), separation of raw from processed product, and scheduled examination for microbial content are more or less important, depending on process or product (IOCCC, 1991, 1993).

References

Barrile, J.C. and Cone, J.F. (1970) Effect of added moisture on the heat resistance of *Salmonella anatum* in milk chocolate. *Appl. Microbiol.*, **19**, 177–8.

Barrile, J.C., Cone, J.F. and Keeney, P.G. (1970) A study of salmonellae survival in milk chocolate. *Manufact. Confectioner*, September.

Barrile, J.C., Ostovar, K. and Keeney, P.G. (1971) Microflora of cocoa beans before and after roasting at 150°C. *J. Milk Food Technol.*, **34**, 369–71.

Biehl, B., Meyer, B., Crone, G., Pallmann, L. and Said, M.B. (1989) Chemical and physical changes in the pulp during ripening and postharvest storage of cocoa pods. *J. Sci. Food Agric.*, **48**, 189–208.

Blaschke-Hellmessen, R. and Teuschel, G. (1970) *Saccharomyces rouxii* Boutroux als Ursache von Gärungserscheinungen in geformten Marzipan- und Persipanartikeln und deren Verhütung im Herstellerbetrieb. *Nahrung*, **18**, 250–67.

Busta, F.F. and Speck, M. L. (1968) Antimicrobial effect of cocoa on salmonellae. *Appl. Microbiol.*, **16**, 424–5.

Carr, J.G., Davies, P.A. and Dougan, J. (1979) Cocoa fermentation in Ghana and Malaysia, in *Proc. 7th Intern. Cocoa Res. Conf.*, pp. 573–6.

Carr, J.G., Davies, P.A. and Dougan, J. (1980) Cocoa fermentation in Ghana and Malaysia – further microbial methods and results. University of Bristol, Bristol.

Chatt, E. M. (1953) *Cocoa Cultivation, Processing Analysis*. Wiley Interscience, New York.

Chick, W.H., Mainstone, B.J. and Wai, S.T. (1981) Mitigation of cocoa acidity in Peninsular Malaysia, in *Proc. 8th Intern. Cocoa Res. Conf.*, Cartagena, Columbia, October 1981, pp. 759–64.

Codex Alimentarius (1981a) Codex standards for cocoa products and chocolate. Standard 87–1981.

Codex Alimentarius (1981b) Codex standards for cocoa products and chocolate. Standard 105–1981.

Collins-Thompson, D.L., Weiss, K.F., Riedel, G.W. and Charbonneau, S. (1978) Sampling plans and guidelines for domestic and imported cocoa from a Canadian national microbiological survey. *Can. Inst. Food Sci. Technol. J.*, **11**, 177–9.

Collins-Thompson, D.L., Weiss, K.F., Riedel, G.W. and Cushing, C.B. (1981) Survey of and microbiological guidelines for chocolate and chocolate products in Canada. *J. Inst. Can. Sci. Technol. Aliment.*, **14**, 203–7.

Cordier, J.L. (1994) HACCP in the chocolate industry. *Food Control*, **5**, 171–5.

Craven, P.C., Baine, W.B., Machel, D.C. *et al.* (1975) International outbreak of *Salmonella eastbourne* infection traced to contaminated chocolate. *Lancet*, **i**, 788–93.

D'Aoust, J.Y. (1977) *Salmonella* and the chocolate industry. A review. *J. Food Prot.*, **40**, 718–27.

D'Aoust, J.Y. and Pivnick, H. (1976) Small infection doses of *Salmonella*. *Lancet*, **i**, 866.

D'Aoust, J.Y., Aris, B.J., Thisdele, P. *et al.* (1975) *Salmonella eastbourne* outbreak associated with chocolate. *Can. Inst. Food Sci. Technol. J.*, **6**, 41–4.

De Grandi, D.M., Mistretta, A. and Lelo, S. (1987) Nougat contamination with salmonellae. *Pasticceria Internazionale*, **58**, 139.

Dockstäder, W.B. and Groomes, R.J. (1971) Detection and survival of salmonellae in milk chocolate. *Bacteriol. Proc.*, no. A36, p. 7.

Dragoni, J., Balzaretti, C. and Ravaretto, R. (1989) Stagionalita della microflora in ambienti di produzione dolciaria. *Ind. Alimentari*, **28**, 481–6.

Finoli, C., Galli, A., Vecchio A., and Locatelli, D. P. (1994) Aspetti igienici di prodotti dolciari a base di frutta. *Ind. Alimentari*, **33**, 1201–6.

Gabis, D.A., Langlois, B.E. and Rudnick, W.E. (1970) Microbiological examination of cocoa. *Appl. Microbiol.*, **20**, 644–5.

Gästrin, B., Kaempe, A. and Nystroem, K.G. (1972) Salmonella durham epidemi spridd genom kakaopulver. *Laekartidingen*, **69**, 5335–8.

Gauthier, B., Guiraud, J., Vincent, J.C., Parvais, J.P. and Galzy, P. (1977) Comments on yeast flora from the traditional fermentation of cocoa in the Ivory Coast. *Rev. Ferment. Ind. Aliment.*, **32**, 160–3.

Gibson, B. (1973) The effect of high sugar concentrations on the heat resistance of vegetative micro-organisms. *J. Appl. Bacteriol.*, **36**, 365–76.

Gill, O.N., Bartlett, C.L.L., Sockett, P.N. *et al.* (1983) Outbreak of *Salmonella napoli* infection caused by contaminated chocolate bars. *Lancet*, **i**, 574–7.

Goepfert, J.M. and Biggie, R.A. (1968) Heat resistance of *Salmonella typhimurium* and *Salmonella senftenberg* 775W in milk chocolate. *Appl. Microbiol.*, **16**, 1939–40.

Goepfert, J.M., Iskander, J.K. and Amundson, C.H. (1970) Relation of the heat resistance of salmonellae to the water activity of the environment. *Appl. Microbiol.*, **19**, 429–33.

Greenwood, M.H. and Hooper, W.L. (1983) Chocolate bars contaminated with *Salmonella napoli*: an infectivity study. *Br. Med. J.*, **26**, 1394.

Grünewald, T. and Münzner, R. (1972) Strahlenbehandlung von Kakaopulver. *Lebensm. Wiss. Technol.*, **5**, 203–6.

Hansen, A.P. (1975) Understanding the microbiological deterioration of cacao. *Candy Snack Industry* , **140**(10), 44, 46, 47.

Hansen, A.P. and Keeney, P.G. (1969) Distribution of carbonyls of moldy cacao beans between cocoa butter and cocoa cake fractions. *Int. Chocolate Rev.*, **24**, 2–5.

Hansen, A.P. and Keeney, P.G. (1970) Comparison of carbonyl compounds in moldy and non-moldy cacao beans. *J. Food Sci.*, **35**, 37–40.

Hansen, A.P. and Welty, R.E. (1970) Microflora of raw cocoa beans. *Mycopathol. Mycol. Appl.*, **44**, 309–16.

Hansen, A.P., Welty, R.E. and Shen, R. (1973) Free fatty acid content of cacao beans infested with storage fungi. *J. Agric. Food Chem.*, **21**, 665–70.

Hockin, J.C., D'Aoust, J.J., Bowering, D., Jessop, J.H., Khama, B., Lior, H. and Milling, M.E. (1989) An international outbreak of *Salmonella nima* from imported chocolate. *J. Food Prot.*, **52**, 51–4.

ICMSF (International Commission on Microbiological Specifications for Foods) (1974) *Microorganisms in Foods. Vol. 2. Sampling for Microbiological Analysis: Principles and Specific Applications*, University of Toronto Press, Toronto.

ICMSF (International Commission on Microbiological Specifications for Foods) (1988) *Microorganisms in Foods. Vol. 4. Application of the hazard analysis critical control point (HACCP) system to ensure microbiological safety and quality*, Blackwell Scientific Publications, Oxford.

IOCCC (International Office of Cocoa, Chocolate and Confectionery) (1991) *The IOCCC Code of Hygienic Practice based on HACCP for the Prevention of* Salmonella *Contamination in Cocoa, Chocolate and Confectionery Products*, IOCCC, Brussels.

IOCCC (International Office of Cocoa, Chocolate and Confectionery) (1993) *The IOCCC Code of Good Manufacturing Practice. Specific GMP for the Cocoa, Chocolate and Confectionery Industry*, IOCCC, Brussels.

Jermini, M.F., Geiges, O. and Schmidt-Lorenz, W. (1987) Detection, isolation and identification of osmotolerant yeasts from high sugar products. *J. Food Prot.*, **50**, 468–72.

Jinap, S. (1994) Organic acids in cocoa beans – a review. *ASEAN Food J.*, **9**, 3–12.

Kapperud, G., Lassen, J., Aasen, S., Gustavsen, S. and Hellesnes, I. (1989a) Sjokoladeepidemien i 1987. *Tidsshr. Nor Loegeforen*, **109**, 1982–1.

Kapperud, G., Lassen, J., Demmarsnes, K., Kristiansen, B.E., Cougant, D.A., Ask, E. and Jakkola, M. (1989b) Comparison of epidemiological marker methods for identification of *Salmonella typhimurium* isolates from an outbreak caused by contaminated chocolate. *J. Clin. Microbiol.*, **27**, 2019–21.

Kapperud, G., Gustavsen, S., Hellesnes, I., Hansen, A.H., Lassen, J., Hirn, J., Jakkola, M., Montenegro, M.A. and Helmuth, R. (1990) Outbreak of *Salmonella typhimurium* infection traced to contaminated chocolate and caused by a strain lacking the 60-megadalton virulence plasmid. *J. Clin. Microbiol.*, **28**, 2597–604.

Kavanagh, T.E., Reineccius, G.A., Keeney, P.G. and Weissberger, W. (1970) Mold induced changes in cacao lipids. *J. Am. Oil Chem. Soc.*, **47**, 344–64.

Kleinert, J. (1966) Einige Aspekte der Kakaobohnenroestung. *Rev. Int. Choc.*, **21**, 258–68.

Kleinert, J. (1988) Cocoa mass, cocoa powder, cocoa butter, in *Industrial Chocolate Manufacture and Use* (ed. S. Beckett), Van Nostrand Reinhold Co., New York, pp 58–88.

Kleinert-Zollinger, J. (1988) Hygiene und Qualität in Süsswaren-Betrieben. *Zucker Süsswaren Wirtschaft*, 136–42.

Legan, J.D. and Voysey, P.A. (1991) Yeast spoilage of bakery products and ingredients. *J. Appl. Bacteriol.*, **70**, 361–71.

Lenovich, L.M. (1979) Production of aflatoxin in cocoa beans. *J. Assoc. Anal. Chem.*, **62**, 1076–7.

Lindley, P. (1972) Chocolate and sugar confectionery, jams and jellies, in *Quality Control in the Food Industry*, Vol 3 (ed. S.M. Herschdoerfer), Academic Press, New York, pp. 259–95.

Maravalhas, N. (1966) Mycological deterioration of cocoa beans during fermentation and storage in Bahia. *Rev. Int. Choc.*, **21**, 375–6.

Martin, R.A. (1987) *Chocolate. Adv. Food Res.*, **31**, 211–343.

Meursing, E.H. and Slot, H. (1968) The microbiological condition of cocoa powder, in *The Microbiology of Dried Foods* (eds E.H. Kampelmacher, M. Ingram and D.A.A. Mossel), Bilthoven, Netherlands, pp. 433–45.

Miller, N., Pretorius, H.E., and Van Der, R.W.B. (1986) The effect of storage conditions on mould growth and oil quality of confectionery and high-oil sunflower seeds. *Lebensm. Technol.*, **19**, 101–3.

Minifie, B.W. (1989) *Chocolate, Cocoa and Confectionery – Science and Technology*, AVI Publishing Co., Connecticut.
Minson, E. (1992) Chocolate manufacture – beans through liquor production. *Manuf. Conf.*, **72**, 61–7.
Mossel, D.A.A. and Sand, F.E.M.J. (1968) Occurrence and prevention of microbial deterioration of confectionery products. *Conserva*, **17**, 23–33.
Mossel, D.A.A., Meursing, E.H. and Slot, H. (1974) An investigation on the numbers and types of aerobic spores in cocoa powder and whole milk. *Neth. Milk Dairy J.*, **28**, 149–54.
Niles, E.V. (1981) Microflora of imported cocoa beans. *J. Stored Prod. Res.*, **17**, 147–50.
Ogunmoyela, O.A. and Birch, G.G. (1984) Effect of sweetener type and lecithin on hygroscopicity and mould growth in dark chocolate. *J. Food Sci.*, **49**, 1088–9, 1142.
Ostovar, K. (1973) A study on survival of *Staphylococcus aureus* in dark and milk chocolate. *J. Food Sci.*, **38**, 663–4.
Ostovar, K. and Keeney, P.G. (1972) Implication of *Bacillus subtilis* in the synthesis of tetramethylpyrazine during fermentation of cocoa beans. *J. Food Sci.*, **37**, 967.
Ostovar, K. and Keeney, P.G. (1973) Isolation and characterisation of microorganisms involved in the fermentation of Trinidad's cacao beans. *J. Food Sci.*, **38**, 611–17.
Park, C., Rayman, K., Stankiewicz, Z. and Hauschild, A. (1976) Toxic effect of cocoa on *Salmonella* during the pre-enrichment period. Proc. 19th Annu. Meet. Can. Fed. Biol. Soc., Halifax, Nova Scotia.
Park, C.E., Stankiewicz, Z.K., Rayman, M.K. and Hauschild, A. (1979) Inhibitory effect of cocoa powder on the growth of a variety of bacteria in different media. *Can. J. Microbiol.*, **25**, 233–5.
Passos, F.M., Lopez, A.S. and Silva, D.O. (1984) Aeration and its influence on the microbial sequence in cacao fermentations in Bahia with emphasis on lactic acid bacteria. *J. Food Sci.*, **49**, 1470–4.
Pitt, J.I. and Hocking, A.D. (1985) *Fungi and Food Spoilage*, Academic Press, Sydney.
Richardson, T. (1987) ERH of confectionery food products. *Manuf. Conf.*, 65–70.
Rieschel, H. and Schenkel, J. (1971) Das Verhalten von Mikroorganismen, speziell Salmonellen, in Schokoladenwaren. *Alimenta*, **10**, 57–66.
Roberts, J.A., Sockett, P.N. and Gill, O.N. (1989) Economic impact of a nationwide outbreak of salmonellosis: cost–benefit of early intervention. *Br. Med. J.*, **298**, 1227–30.
Roelofsen, P.A. (1958) Fermentation, drying and storage of cacao beans. *Adv. Food Res.*, **8**, 225–96.
Rohan, T.A. (1963) Processing of raw cocoa for the market. FAO Agriculture Study no. 60.
Rombouts, J.E. (1952) Observation on the microflora of fermenting cacao beans in Trinidad. *Proc. Soc. Appl. Bacteriol.*, **15**, 103–11.
Sanchez, J., Guiraud, J.P. and Galzy, P. (1984) A study of the polygalacturonase activity of several yeast strains isolated from cocoa. *Appl. Microbiol. Biotechnol.*, **20**, 262–7.
Shaughnessy, W.J. (1992) Cocoa beans – planting through fermentation its effect on flavor. *Manuf. Conf.*, **72**, 51–8.
Simonsen, B., Bryan, F.L., Christian, J.H.B., Roberts, T.A., Tompkin, B.R. and Silliker, J.H. (1987) Prevention and control of food-borne salmonellosis through application of HACCP. *Int. J. Food Microbiol.*, **4**, 227–47.
Slater, C.A. (1986) Chocolate and sugar confectionery, jams and jellies, in *Quality Control in the Food Industry, Vol.3* (ed. S.M. Herschdoerfer), 2nd edn, Academic Press, London, pp. 139–81.
Tamminga, S.K. (1979) The longevity of *Salmonella* in chocolate. *Antonie van Leeuwenhoek*, **45**, 153–7.
Tamminga, S.K., Beumer, R.R., Kampelmacher, E.H. and van Leusden, F.M. (1976) Survival of *Salmonella eastbourne* and *Salmonella typhimurium* in chocolate. *J. Hygiene*, **76**, 41–7.
Todd, E.D. (1985) Economic loss from foodborne disease and non-illness related recalls because of mishandling by food processors. *J. Food Prot.*, **48**, 621–33.
Walker, H.W. and Ayres, J.C. (1970) Yeasts as spoilage organisms, in *The Yeasts* (eds A.H. Rose and J. S. Harrison), Vol. 3, Academic Press, New York, pp. 463–527.
Warburton, D.W., Harwig, J. and Bowen, B. (1993) The survival of salmonellae in homemade chocolate and egg liqueur. *Food Microbiol.*, **10**, 405–10.
Welch, R. (1972) Cocoa and cocoa butter. *Manuf. Conf.*, **52**, 53–6.
Whitfield, F.B., Tindale, C.R., Shaw, K.J. and Stanley, G. (1984) Contamination of cocoa powder by chlorophenols and chloroanisoles adsorbed from packaging materials. *Chem. Ind.*, 772.
Windisch, S. (1977) Nachweis und Wirkung von Hefen in zuckerhaltigen. *Lebensmittel. Aliment.*, 23–9.
Witlin, B. and Smyth, R. D. (1957) 'Soapiness' in 'white' chocolate candies. *Am. J. Pharm.*, **129**, 135–42.
Zak, D.L. (1988) The development of chocolate flavor. *Manuf. Conf.*, **68**, 69–74.
Zak, D.L., Ostovar, K. and Keeney, P.G. (1972) Implication of *Bacillus subtilis* in the synthesis of tetramethylpyrazine during fermentation of cocoa beans. *J. Food Sci.*, **37**, 967–8.
Zapatka, F.A., Varney, G.W. and Sinskey, A.J. (1977) Neutralization of the bactericidal effect of cocoa powder on salmonellae by casein. *J. Appl. Bacteriol.*, **42**, 21–5.
Zeller, M. (1963) Hefennifizierte Kondensmilch als Ursache von Fehlfabrikaten bei Schokolade. *Arch. Lebensmittelhyg.*, **14**, 6–10.

TAB F4

Issue Paper FE-2019-09 - Definition for Potentially Hazard Foods

Danielle Melaragno

Joint Committee Issue Paper

NSF Standard(s) Impacted: NSF/ANSI 170: Glossary of Food Equipment Terminology

Background:

Provide a brief background statement indicating the cause and nature of concern, the impacts identified relevant to public health, public understanding, etc, and any other reason why the issue should be considered by the Committee. Reference as appropriate any specific section(s) of the standard(s) that are related to the issue.

Nomenclature and guidelines regarding **potentially hazardous food** have been updated within the FDA Food Code based on outbreaks that have occurred and subsequent research. It is recommended that NSF/ANSI 170 be revised to correspond with updates regarding what is now known as **Time/Temperature Control for Safety Food.**

Recommendation:

Clearly state what action is needed: e.g., recommended changes to the standard(s) including the current text of the relevant section(s) indicating deletions by use of ~~strike-out~~ and additions by highlighting or underlining; e.g., reference of the issue to a Task Group for detailed consideration; etc.

Revise clause 3.154 and other related definitions (such as 3.138 for non-potentially hazardous food) to correspond current U.S. FDA Food Code (2017).

3.154 ~~potentially hazardous food~~ Time/temperature control for safety (TCS) food:

1) A food that ~~is natural or synthetic and requires temperature control because it is in a form capable of supporting the following: rapid and progressive growth of infectious or toxigenic microorganisms; growth and toxin production of *Clostridium botulinum*; or, in raw shell eggs, the growth of *Salmonella enteritidis*~~. requires time/temperature control for safety (TCS) to limit pathogenic microorganism growth or toxin formation.

2) ~~Potentially hazardous food~~ **Time/temperature control for safety (TCS) food** includes:
- animal food (a food of animal origin) that is raw or heat-treated;
- food of plant origin that is heat-treated or consists of raw seed sprouts;
- cut melons;
- cut leafy greens;
- cut tomatoes or mixtures of cut tomatoes that are not modified in a way so that they are unable to support pathogenic microorganism growth or toxin formation; and
- garlic and oil mixtures that are not acidified or otherwise modified at a food processing plant in a way that results in mixtures that do not support ~~growth as specified above~~. pathogenic microorganism growth or toxin formation

(3) ~~Potentially hazardous food~~ **Time/temperature control for safety (TCS) food** *does not include:*
— an air-cooled hard-boiled egg with shell intact, or a shell egg that is not hard-boiled but has been treated to destroy all viable salmonellae;
— a food having water activity (aw) value of 0.85 or less;
— a food with a pH of 4.6 or less when measured at 75 °F (24 °C);
— a food, in an unopened hermetically sealed container, that is commercially processed to achieve and maintain commercial sterility under conditions of nonrefrigerated storage and distribution;
— a food for which laboratory evidence demonstrates that rapid and progressive growth of infectious or toxigenic microorganisms or the growth of S. enterititdis in eggs or C. botulinum cannot occur, as defined previously in this section, and that may contain a preservative, other barrier to the growth of microorganisms, or a combination of barriers that inhibit the growth of microorganisms; or

— a food that does not support the growth of microorganisms as specified under part a) of this definition even though the food may contain an infectious or toxigenic microorganism or chemical or physical contaminant at a sufficient level to cause illness.

Supplementary Materials (photographs, diagrams, reports, etc.):
If not provided electronically, the submitter will be responsible to have sufficient copies to distribute to committee members.

Definition of page 22 of U.S. FDA Food Code 2017 (page 52 of PDF):

FDAFoodCode2017.pdf

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Submission Date: 07/26/19

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**Type written name will suffice as signature*

TAB F5

Issue Paper FE-2019-10 - Definition for Sheets.

Danielle Melaragno

Joint Committee Issue Paper

NSF Standard(s) Impacted: NSF/ANSI 170: Glossary of Food Equipment Terminology

Background:

Provide a brief background statement indicating the cause and nature of concern, the impacts identified relevant to public health, public understanding, etc, and any other reason why the issue should be considered by the Committee. Reference as appropriate any specific section(s) of the standard(s) that are related to the issue.

The Design and construction section of most NSF/ANSI food equipment standards include the following requirement: *Joints formed by overlapping sheets of material shall not create upwardly facing horizontal ledges*.

Note, the term "permanent" is not included in this requirement, therefore non-permanent joints are included within this restriction.

While standards such as A480/A480M - 18a, *Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip*[1], include a definition for the term "sheet," NSF/ANSI 170 does not. This can result in confusion regarding the compliance of various construction types. Examples of different construction types have been provided below for comparison.

Example 1	Example 2	Example 3
		

Recommendation:

Clearly state what action is needed: e.g., recommended changes to the standard(s) including the current text of the relevant section(s) indicating deletions by use of ~~strike-out~~ and additions by highlighting or underlining; e.g., reference of the issue to a Task Group for detailed consideration; etc.

It is recommended that a definition for the term "sheet" be added to the NSF/ANSI 170 standard.

Example definition from A480/A480M - 18a:
sheet, n—material under 3/16 in. [5.00 mm] in thickness and 24 in. [600 mm] and over in width.

[1] ASTM A480 / A480M-18a, Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip, ASTM International, West Conshohocken, PA, 2018, www.astm.org

Joint Committee Issue Paper

Supplementary Materials (photographs, diagrams, reports, etc.):
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Submission Date: 07/26/19

Please submit to: Al Rose, arose@nsf.org

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TAB F6

FE-2019-11 - Casters

Joel Hall

NSF Standard(s) Impacted: Standard 2

Background:

Provide a brief background statement indicating the cause and nature of concern, the impacts identified relevant to public health, public understanding, etc, and any other reason why the issue should be considered by the Committee. Reference as appropriate any specific section(s) of the standard(s) that are related to the issue.

Casters- Casters Horn to Wheel Distance: 2354987-6

he GD series leveling caster is a unique, dual-function product. To date, there are no identical NSF-approved caster products currently utilized in the kitchen industry. As a manufacturer of casters and wheels, we have had a leading kitchen equipment manufacturer request NSF-approved versions of our product. We regard innovation in the marketplace as a benefit to our customers, our business, and our product line growth.

We recognize that current NSF standards as applied to casters are appropriate, considering that there is not a bright line to designate "static" and "active" casters. Our request for ammendments concerns the dual function of our innovative product, which has the capabilities of a caster, but its primary function is that of a stationary leveling foot.

The GD series leveling caster is marketed as "Innovative multifunctional products" for use in applications for "moving a piece of equipment into a desired location and setting the unit into... position" (Pg. 6, G-Dok General Catalogue).

The GD series leveling caster provides a stable, anti-vibration platform for static operation with the ability to move easily for cleaning. The GD series allows for heavy food-industry equipment to be considered legally mobile. This may be of particular interest to restaurant owners concerned with financial loss due to laws regarding "fixtures" to be left behind at the termination of a lease (https://www.stimmel-law.com/en/articles/fixtures-commercial-leases-what-you-have-leave-behind-end-lease).

The relevant standard in question relates to easy cleaning:

> **§5.232.5**
> If the closest surface of the horn leg parallel to the wheel side is 1.0 in wide (25 mm) or less, a minimum clearance of 1 /8 in (0.13 in, 3.2 mm) shall be provided between the sides of the wheels and the horn legs. If the surface is greater than 1.0 in (25 mm) wide, a minimum ¼ in (0.25 in, 6.4 mm) clearance shall be provided.

Recommendation:
Clearly state what action is needed: e.g., recommended changes to the standard(s) including the current text of the relevant section(s) indicating deletions by use of ~~strike-out~~ and additions by highlighting or underlining; e.g., reference of the issue to a Task Group for detailed consideration; etc.

Casters- Wheel tread to horn distance: 2354987-6

The GD leveling caster is used primarily as a leveler in a kitchen environment. They are intended for use for installation, removal, and cleaning. The wheel is not in constant contact with the ground like other casters.

We recommend applying the 1/32" clearance standards as an allowable clearance for caster horn to wheel in leveling casters. This clearance standard is the same distance allowed under **NSF-ANSI-2 §8.2.3:**

Reinforcing and framing members: Seams wider than 1/32 in (0.031 in, 0.79 mm) that are formed by reinforcing and framing members shall be sealed.

Supplementary Materials (photographs, diagrams, reports, etc.):
If not provided electronically, the submitter will be responsible to have sufficient copies to distribute to committee members.

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Signature*: Joe Hall
Company: D. Rado
Telephone Number: 866-362-3226
E-mail: jrh@dorado.net
Submission Date: 8/1/19

Please submit to: Al Rose, arose@nsf.org

**Type written name will suffice as signature*

NSF Standard(s) Impacted: Standard 2 - Food Equipment

Background:
Provide a brief background statement indicating the cause and nature of concern, the impacts identified relevant to public health, public understanding, etc, and any other reason why the issue should be considered by the Committee. Reference as appropriate any specific section(s) of the standard(s) that are related to the issue.

Casters- Wheel tread to horn distance: 2354987-7

The GD series leveling caster is a unique, dual-function product. To date, there are no identical NSF-approved caster products currently utilized in the kitchen industry. As a manufacturer of casters and wheels, we have had a leading kitchen equipment manufacturer request NSF-approved versions of our product. We regard innovation in the marketplace as a benefit to our customers, our business, and our product line growth. We regard innovation in the marketplace as a benefit to our customers, our business, and our product line growth.

We recognize that current NSF standards as applied to casters are appropriate, considering that there is not a bright line to designate "static" and "active" casters. Our request for amendments concerns the dual function of our innovative product, which has the capabilities of a caster, but its primary function is that of a stationary leveling foot.

The relevant standard in question relates to easy cleaning:

> **§ 5.23.6 A** minimum clearance of 1/4 in (0.25 in, 6.4 mm) shall be provided between the wheel tread and horn assembly. For swivel casters, the minimum clearance shall be 1/8 in (0.13 in, 3.2 mm). Hooded horns with more than a 90° arc of the wheel covered shall not be used.

Recommendation:
Clearly state what action is needed: e.g., recommended changes to the standard(s) including the currenttext of the relevant section(s) indicating deletions by use of ~~strike out~~ and additions by highlighting or underlining: e.g., reference of the issue to a Task Group for detailed consideration; etc.

Casters- Wheel tread to horn distance: 2354987-7

The GD caster's form is integral to its function. A hood of greater than 90 degrees is structurally necessary for the GD's function as intended. Exceptions to **§ 5.23.5** and **§ 5.23.6.** have been granted for caster brakes and locking mechanisms in 5.23.8. We recommend the following amendment:

5.23.8 Casters with integrated levelers, brakes and other locking devices are exempt from the caster clearance requirements in **§ 5.23.5** and **§ 5.23.6.**

Alternatively, we recommend the creation of **§ 5.23.9:**
"Casters with integrated levelers are exempt from the clearance and hooded horn requirements in **§ 5.23.6.**"

Supplementary Materials (photographs, diagrams, reports, etc.):
If not provided electronically, the submitter will be responsible to have sufficient copies to distribute to committee members.

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Signature*: Joel Ault
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Submission Date: 8/1/19

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**Typewritten name will suffice as signature*

Item No. FE-2019-11
(For NSF International internal use)
03/2013

TAB F7

Information Paper
Surface Cleanability

Dipak Negandhi

Joint Committee Information Paper

News of events or activities related to the field of interest of the Joint Committee

Subject:
NSF/ ANSI 51 on Food Equipment materials, Section 7 Surface Cleanability Test

Brief statement of information provided:
The TG on Standard 51 has approved deletion of this test due to accuracy and safety concerns.
The original issue paper on this subject also requested an evaluation if an alternate is needed
This information paper is being submitted to evaluate alternate methods to determine 'cleanability' of a surface

Name: Dipak J. Negandhi, P.E., CFSP
Company: A.O.Smith, Commercial Engineering
Telephone Number: 843-335-8281 Ext. 423 E-mail: djnegandhi@hotwater.com

Please submit to: Al Rose, arose@nsf.org

Surface Characteristics

NSF Joint Committee

Task Group on Std 51 – Materials

Dipak J. Negandhi, P.E., CFSP, Fellow ASTM International

A.O. Smith, Commercial Engineering

McBee, SC

Surface Cleanability

- TG has recommended removal of cleanability test

- General TG consensus was to replace it with a new test or other measurable criteria

Surface Finish

- Standard 51 Requirements:
  - Abrasion Resistance Test
  - Impact Resistance Test
  - Adhesion Resistance Test (for coatings)

Surface Finish (SF)

- SF is a qualitative parameter
- SF can be quantified and measured as Surface Roughness (SR)
- SR is measured as Ra value of surface using a stylus and Ra meter
- For accurate measurement, wavelength cutoff filters for roughness and waviness are specified

Surface Roughness

- #2B SS - Ra less than 20 micro-inch
- #3 SS - Ra less than 40 micro-inch
- #4 SS - Ra less than 25 micro-inch
  - These finishes are acceptable for food contact as cleanable surfaces (empirically)
  - Surfaces above threshold roughness (embossed) may not be suitable for food contact

Hardness

- Hardness can be measured with instruments intended for the surface.
- Measured as -
  - Rockwell (for metals and solid surface materials) in units of HRC / HRB or HRF
  - Or Shore (for softer materials like plastics and elastomers) in units of Shore OO, Shore A or Shore D

Hardness

- Harder materials are easier to clean
- Rubbers and plastics with higher density and non-porous surface are also easy to clean
- Surfaces below a threshold hardness level may require additional tests for porosity or cleanability

Porosity

- Porosity is typically expressed as a percent of solid volume
- Porosity = (Volume of Voids / Total Volume) x 100%
- ASTM test procedures for determining porosity of ceramics and other soft materials
- e.g. ASTM C373-18 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products

Summary

- A test for cleanability combined with threshold limits of physical parameters can be an effective alternate to replace the cleanability test
- Additional research to establish thresholds
- Evaluate existing test methods to use
  - e.g. NSF/ ANSI 3 (Warewashing Equipment) describes a soil removal test

Joint Committee Issue Paper

NSF Standard(s) Impacted: **NSF/ANSI 51**

Background:

Provide a brief background statement indicating the cause and nature of concern, the impacts identified relevant to public health, public understanding, etc, and any other reason why the issue should be considered by the Committee. Reference as appropriate any specific section(s) of the standard(s) that are related to the issue.

The surface cleanability test is not a direct requirement of any NSF Standard. Currently, it is only referenced in the event of a texture being considered uncleanable. However, Section 5.1 of NSF/ANSI 51 requires materials to be smooth and easily cleanable. The defined terms of "smooth" and "easily cleanable" are used to evaluate material surfaces rather than the surface cleanability test. Therefore, the test is not actually used.

The surface cleanability test is no longer capable of being performed by any existing laboratory. The NSF laboratory was the only laboratory that has ever run this test and no longer has the ability.

There is a long history of challenges with the test with several failed attempts to revise/replace it.

Recommendation:

Clearly state what action is needed: e.g., recommended changes to the standard(s) including the current text of the relevant section(s) indicating deletions by use of ~~strike-out~~ and additions by highlighting or underlining; e.g., reference of the issue to a Task Group for detailed consideration; etc.

1. Remove the current unusable surface cleanability test from NSF/ANSI 51.

2. Obtain consensus on whether a workable requirement is necessary to be developed and added after the unusable test is removed.

5 General materials requirements

5.1 Materials shall be smooth and easily cleanable.

~~If a material is textured so that it may hinder the removal of soil during cleaning, the material shall meet the surface cleanability requirements in 7.~~

~~**7 Surface cleanability**~~

~~**7.1 Test method**~~

~~When required by this Standard, the surface cleanability of a textured material shall be determined by quantification of the amount of applied soil that remains on a material sample after cleaning. Four material test plaques (5.0 x 5.0 in [130 x 130 mm]) shall be washed with a non-ionic, low-foaming, powdered mechanical washer detergent and water at 162 ± 2 °F (72 ± 1 °C) and shall be air dried. A standardized synthetic lard comprised of glycerol trioleate (62.5%), glycerol tristearate (37.5%), and trace amounts of 14C-labeled glycerol trioleate (0.845 µCi per gram of synthetic lard) and 14C-labeled stearic acid (0.514 µCi per gram of synthetic lard), shall be applied to the test plaques. The lard shall be heated to a liquid state, and 200 µL shall be applied to each of four equal quadrants on each test plaque. The lard shall be spread in a uniform layer onto the quadrants while under an infrared heat source to maintain the lard in a liquid state. The mass of soil on each quadrant shall be quantified using a beta radiation counting system;~~

~~each quadrant shall have 20 ± 5 mg applied to its surface. The soiled test plaques shall be washed in a single-temperature, total-dump dishwashing machine having the following characteristics:~~
~~– no overhead spray;~~
~~– no detergent added;~~
~~– wash and rinse water temperature: 162 ± 2 °F (72 ± 1 °C);~~
~~– wash cycle time: 120 ± 2 s;~~
~~– total wash cycle volume: 2.3 ± 0.2 gal (8.7 ± 0.8 L);~~
~~– dwell cycle time: 30 ± 2 s;~~
~~– rinse cycle time: 30 ± 2 s; and~~
~~– total rinse cycle volume: 2.3 ± 0.2 gal (8.7 ± 0.8 L).~~
~~After washing, the residual soil on each of the sixteen quadrants shall be quantified using a beta radiation counting system. The average residual soil value shall be compared to the control value for the zone in which the material is located.~~

~~**7.2 Acceptance criteria**~~

~~The average residual soil on the quadrants shall not exceed the predetermined control value for the zone in which the material is located.~~

~~**Zone**~~	~~**Control value**~~	~~**Examples**~~
~~food zone~~	~~30 µg~~	~~stainless steel - No. 3 (100 grit) finish~~
~~heated food zone~~	~~1750 µg~~	~~cast iron~~
~~ice bin materials~~	~~650 µg~~	~~rotationally molded polyethylene~~
~~splash and nonfood zone~~	~~220 µg~~	~~hot rolled steel~~

Supplementary Materials (photographs, diagrams, reports, etc.):
If not provided electronically, the submitter will be responsible to have sufficient copies to distribute to committee members.

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Signature*: Kelli M. Fall
Company: NSF International
Telephone Number: 734-649-5957 E-mail:kfall@nsf.org

Please submit to the Secretariat of the Joint Committee on: _____

Email completed form to the Standards Department: standards@nsf.org.

**Type written name will suffice as signature*

Vote: All in favor.

Issue: NSF 51 - *Food Equipment Materials* and NSF 36 – *Dinnerware*: Radioactive lard cleanability test.
Discussion: The use of the radioactive lard cleanability test in NSF 51 and NSF 36 should be reassessed. Manufacturers are unable to be perform this test for research and development or preliminary testing. NSF currently is the only popular testing facility able to conduct these tests. Disposal of radioactive waste makes testing expensive. Other methods are available.
Motion by J. Hipp: Data collected on the use of ATP bioluminescence (as discussed at the November 1997 Joint Committee meeting) should be sent to the Task Group on Food Equipment Materials for review. If satisfactory, it should be balloted into NSF 51 and NSF 36.
Motion seconded by A. Munson.
Vote: All approved.

Charles Otto formally resigned from his duties as Chairman of the NSF Joint Committee on Food Equipment. The Joint Committee expressed their appreciation for Capt. Otto's contributions and service to the Joint Committee and to the advancement of public health in general.

Charles Otto pronounced the meeting adjourned.

11/97

The JC reviewed the recommendations made by the Task Group on Sinks on Mobile Food Carts. The JC supported the Task Group recommendations but felt more Task Group discussion was needed to address concerns associated with waste storage capacity (e.g., employees not washing their hands as needed in order to avoid the need for emptying the waste water), the size of the sink, and the minimum and maximum water temperature for handwashing. Dee Clingman suggested getting more food cart users involved on the TG, and offered to provide the JC with some recommendations of people to contact.

NSF Standard 51

Surface Cleanability

NSF was pleased to have Standard 51 adopted by the Board of Directors in early November 1997. However, NSF recognizes that the surface cleanability test referenced by NSF 51 should be updated because it is difficult to duplicate outside of the NSF testing facility and requires a license to handle radioactive materials. Kevin Smith reminded the JC that there is currently a Task Group on Surface Cleanability. One alternative to the current test method would be utilizing ATP bioluminescence technology. Mr. Smith showed the JC a video prepared by IDEXX on the Lightning system, which uses ATP bioluminescence to rate the cleanliness of food surfaces. Because ATP is found in foodstuff and in microorganisms, it is a good indicator of overall cleanliness.

The JC had some concerns about the correlation between the ATP measured and relative levels of microorganisms and food residues. According to some, this technology could produce low level (acceptable) readings with some pathogens still present. In response, Kevin Smith pointed out that NSF's current soil removal test is intended to be a measure of how easily soil is removed from a surface and not necessarily how well microorganisms can be destroyed or removed.

Organic Coatings

Milton Schwartz asked the JC to reconsider the prohibition of organic coatings used for direct food contact, especially in light of the recent exception that was made for Teflon-coated ~~popcorn~~ sushi machines. **Mr. Schwartz motioned that a coating can be used as long as it is demonstrated that it can adhere to a non-corrosion resistant surface and passes a toxicological review. This motion was carried unanimously by the JC.** Kevin Smith informed the JC that Standard 51 is not open for revision now, but that this recommendation will be proposed during the next revision process.

Retiring Joint Committee Members

The JC was pleased to honor Jim Cochran and Roger Fakes for their years of service on the Joint Committee. They will be missed.

Standard 7

Update from Task Group on Food Store Refrigeration

Kevin Smith presented an update from the Task Group on Food Store Refrigeration. He explained the ASHRAE test methods that the Task Group is recommending be incorporated into NSF 7 for the testing of food store display refrigerators. He explained that the latest proposal is to require a maximum product temperature of 43°F, with the understanding that this will require that the typical product temperature be

12/95

Corrosion Resistance

Kevin Smith provided an update on the development of corrosion resistance requirements for incorporation into Standard 51. The plan is to identify specific metal materials that have acceptable corrosion resistance for food equipment applications and list them in the Standard. Limitations for the use of certain materials will also be included. The Standard will also provide a means for accepting alternate materials based on test results and other supporting data. Standard 51 will also establish criteria for abrasion resistance and adhesion of coatings used to render materials corrosion resistant. Mr. Smith indicated that a meeting of the Task Group on Corrosion Resistance would be held this summer.

The corrosion of shelving units was a primary reason for initially forming a task group on Corrosion Resistance. Mr. Smith explained that a subcommittee of the Task Group was recently formed to discuss specific corrosion resistance requirements for food service shelving. The subcommittee held a conference call and is exploring possible abrasion tests for use in conjunction with salt spray testing. The specific requirements for shelving would be incorporated into Standard 2. Under the proposed approach, corrosion resistance requirements that apply to other specific types of equipment will be placed in the appropriate Food Equipment Standard, rather than the general materials Standard (#51).

Surface Cleanability

Ms. Colucci reported that the Task Group on Surface Cleanability met on April 23, 1995. At the Task Group meeting, results from the three-way correlation of surface roughness, surface cleanability, and bacterial retention were presented. In the most recent laboratory activities, biofilms were established on the surfaces of materials and direct epifluorescent microscopy (DEM) was used to measure residual bacteria after a standardized wash. While favorable results were obtained with the (DEM) method, the Task Group recommended that the use of a non-microbial soil be explored. Specifically, NSF staff will explore the feasibility of using a synthetic lard soil similar to the soil used in the existing NSF cleanability method or another soil that is representative of typical food soils. Once an acceptable soil is identified, the feasibility of incorporating fluorescent particles into the soil and using the particles as a tracer of residual soil will be determined.

If the use of the soil and the fluorescent particles is not feasible, work will return to the DEM method. However, rather than establishing a biofilm on the materials, the Task Group has recommended that the bacteria be incorporated into an acceptable soil (egg).

Ms. Colucci indicated that these follow-up studies will be initiated as soon as possible and another Task Group meeting will be held in November or December of 1995.

Day 2-December 7, 1995 (see attached attendance record)

Harvey Collins called the meeting to order at 9:02 AM

Andrea Jensen (NSF) read the NSF Anti-Trust Statement to the Committee.

Surface Cleanablility

Mena Colucci (NSF) presented the recommendations of the NSF Task Group on Surface Cleanability. The recommendations, which were developed at the Task Group meeting on November 8, 1995, detailed how the development of the new surface cleanability method should proceed, which materials should be evaluated under Standard 51, and how the Standard should be written to accurately reflect which materials should be evaluated. The specific Task Group recommendations can be found in the meeting package (dated November 21, 1995) that was sent to all committee participants before the December 6-7, 1995 meeting.

Committee members expressed general support for the Task Group recommendations.

Corrosion Resistance

Kevin Smith (NSF) presented the recommendations of the NSF Task Group on Corrosion Resistance. The recommendations, which were developed at the Task Group meeting on November 9, 1995, detail how the corrosion resistance of materials should be addressed in NSF Standard 51. Standard 51 will be a general materials Standard that will apply to equipment covered by all of NSF Food Equipment Standards. A Draft of Standard 51 is due out by Spring/Summer 1996.

The Task Group recommendations were distributed to all present. No objections were raised by JC members or guests. A copy of the recommendations can be obtained by contacting Kevin Smith at NSF.

Standard 7-Open-top Refrigeration Performance Testing

Mena Colucci (NSF) presented an update on the current status of Standard 7. Ms. Colucci reported the following chronology of events:

- At the May 1995 JC meeting, members expressed general support for all Standard 7 Task Group recommendations, including a 45°F maximum medium temperature and a 86°F ambient evaluation temperature. After that last meeting, however, NRA expressed concern to NSF and FDA about the 45°F maximum medium temperature because it was greater than the 41°F maximum temperature specified in the FDA Food Code.

- The issue was presented and discussed at the October, 1995 meeting of the Council of

11/94

CORROSION RESISTANCE

Milt Schwartz reviewed the history of the Corrosion Resistance Task Group and provided a summary of the September 27, 1994 Task Group meeting. He stated that the Task Group is focusing on the following tasks:

- Determining a list of approved metallic and non-metallic materials.
- Identifying the appropriate specifications for coatings that are used to render food equipment materials corrosion resistant.
- Developing a test method for determining the corrosion resistance of coated and non-coated food equipment materials.
- Determining the best way to handle component parts (e.g., fasteners, hinges, and casters).

At the September 27, 1994 meeting, the Task Group agreed that Standard 51 should specify that materials, rather than components and final assemblies, be evaluated. Components and final assemblies should be addressed in the design and construction sections of the individual food equipment standards. Galvanic corrosion will also be addressed in the individual standards.

With respect to the test method that will be used to determine corrosion resistance, the Group has agreed that the method should be cost effective and reproducible. At this point, the feasibility of a saltwater droplet test method is being explored as a possible alternative to the salt spray test. In addition, the Group agreed that, depending on their application, test samples should be subjected to a standardized abrasion and impact prior to performing the corrosion resistance method.

Kevin Smith (NSF, Project Coordinator , Standards) told the Joint Committee that he believed the Task Group meeting was productive and he expected another meeting to be held in early 1995. By that time, most of the corrosion resistance issues should be resolved.

CLEANABILITY

Mena Colucci (NSF, Project Coordinator, Standards) provided an update on the surface cleanability issue. She reviewed the history of the current cleanability method and the reasons that the NSF cleanability method is under review. She provided results from the NSF two-way correlation study of surface roughness and the current NSF cleanability method. There was a strong correlation between the NSF cleanability method and roughness for metal controls, however, there was little to no correlation on plastic materials. Based on information in the literature, it appears that the most logical next-step would be to conduct a microbial-based method on the same materials included in the two-way correlation study. The specific microbial-based method that NSF is considering is the direct epifluorescent microscopy (DEM) method. According to the literature, the DEM method promises to be more sensitive and reproducible than traditional microbial-based cleanability methods. Once the microbial data is generated, it will be possible to characterize 1) the correlation between surface roughness and bacterial retention, and 2) the correlation between the current NSF cleanability method and bacterial retention.

In the discussions following the presentation, members suggested that NSF consider incorporating an organic overlay and surface abrasion into the microbial-based method. NSF staff stated that they do not intend on expanding the breadth of materials that will be subjected to cleanability evaluations. Discussions also revealed that some members of the committee thought that both smoothness and bacterial retention were important, whereas other members thought that bacterial retention, irrespective of surface roughness, was of primary concern. George Kupfer (NSF, Chief Operating Officer) stated his opinion that soil and bacterial retention were the key issues. At the close of the discussion, the Committee agreed that the Standard 51 Cleanability Task Group should focus on identifying a reproducible method that 1) addresses soil removal and surface abrasion, and 2) correlates to bacterial retention.

MARINE FOOD EQUIPMENT STANDARDS

Phil Kirkwood introduced this agenda item by emphasizing the importance of addressing the sanitation-related issues of marine food equipment. Ron Daitz (Royal Caribbean Cruise Lines) reported that a group of representatives from the cruise line industry had discussed the lack of progress and were no longer interested in pursuing the project with NSF.

Commentary: In follow-up discussions between Ron Daitz and NSF staff, it was agreed that NSF and the cruise line industry would each explore its interest in pursuing a standard. NSF agreed to follow up with a proposal within 1 month.

Day 2 - September 29, 1994

The chairman announced that the order of discussions on the meeting agenda would be changed. The first item on the morning agenda would be heat treatment dispensing freezers.

HEAT TREATMENT DISPENSING FREEZERS

The chairman gave a brief overview of the history of Standard 6 as it applies to heat treatment dispensing freezers. He introduced Norm Beck (Taylor Company) to make a proposal for a change to Standard 6. Norm Beck asked the committee to consider changing section 4.30.1 of Standard 6 to extend the lockout time for heat treatment dispensing freezers from 14 days to 42 days. Mr. Beck introduced Debra Sweger (Taylor Co.) who provided an overview of the use of the machines in the food service industry over the past several years. Ms. Sweger stated that a six week lockout period would allow for distributors of the machines to offer customers a service contract to clean the machines properly at intervals of six weeks or less. This would ensure the job is done properly. Ms. Sweger indicated that the extended lockout period would do nothing to diminish the public health protection offered by the use of heat treatment dispensing freezers. Ms. Sweger introduced Dr. Stephanie Doores (Penn State University) who presented the results of a study showing that the sanitization efficacy and residual deposition associated with a 56-day lockout period met the requirements of Standard 6. Dr. Doores showed that when the Taylor unit was tested in accordance with Standard 6 procedures, pathogen survival after heat treatment over the 56-day period was well within the limits prescribed by the standard. The researchers found no build-up of food or chemical deposits over the test period.

JOINT COMMITTEE ON FOOD EQUIPMENT

MEETING SUMMARY

November 7, 1991

NSF Building
Ann Arbor, Michigan

This material has not been subject to the full review set forth in the NSF third-party consensus process and is not to be released to any publication or be used for commercial purposes.

The meeting was called to order by the Chairperson, Philip B. Kirkwood, Jr (Michigan Department of Public Health). Self-introductions and a welcome to new members, Jim Witkowski (Minnesota Department of Health) and Mike McDevitt, in absentia, (Captain, US Army Environmental Hygiene Agency) were extended. Parting words of appreciation from retiring members Harvey J. McPhee (Conference of Local Environmental Health Administrators) and Erwin Gadd (Missouri Department of Health) were conveyed by Jim Kendzel (NSF *International*). The agenda review followed. Three write-in topics were added:

- Surface cleanability,
- Standard 7 update, and
- ASSE 1022 news.

Surface Cleanability

Surface cleanability was placed on the agenda because some of industry felt the method required review in relation to reproducibility and the pass/fail criteria. Jim Kendzel reminded the Committee that a Task Group on surface cleanability previously recommended to the Joint Committee that all food zone materials comply with the 1% soil residual based on rotationally-molded polyethylene requirements. The Joint Committee rejected the Task Group recommendation based on the feeling that it would lower the current requirements for all food zone materials.

Mike Roby (Rubbermaid) expressed concerns with the method and asked the Joint Committee to reconsider going to the 99% (1% residual) cleanability factor based on rotationally-molded polyethylene. Mike expressed a need for reproducible test methods that any laboratory can perform. He would like to see a task group established to resolve the issue. Linda Burgert (Dow Chemical) seconded Mike's recommendation. She expressed concerns that the unique testing equipment and apparent variable results make it difficult to provide answers to their customers. Lou Fishberg (Union Carbide) agreed and volunteered to serve on the Task Group. The Joint Committee was in agreement and confirmed that the method is not intended to address the sanitizing of a surface, but only the removal of soil. Jim Kendzel will appoint a Task Group to look at surface cleanability, and will report back to the Joint Committee at the next meeting.

5/90

Mr. Ajax Arvin (Keating of Chicago) also spoke on behalf of the manufacturers (see pink attachment).

After a general discussion of the issues by Joint Committee members, the following motions were presented:

> **Motion 1** (H., McPhee): Covers shall be provided on fat filter systems as proposed in the fifth draft of proposed revisions to Standard 4.
> Yes: 8 No: 10 Abstention: 9
>
> **Motion 2** (M. Schwartz): A "protective lid" shall be required on all fat filter systems. The Task Group shall provide a definition for "protective lid."
> Unanimous acceptance
>
> Note: The intent is to define a cover that protects against misuse or gross contamination of the filter system during storage. A "protective lid" would not have as stringent requirements as compared to covers over food zones.
>
> **Motion 3** (W. Grills): The use of hot oil to clean the systems is acceptable, however, Standard 4 shall be revised to require that the systems be essentially self-draining.
> Unanimous acceptance

Microwave Ovens

Jim Kendzel stated that the issue of uniformity of cooking in microwave ovens had been requested to be discussed by the Joint Committee. He further advised that uniformity of cooking has been viewed in the past as an operational concern and not an equipment design/performance need. Jim Brown (NRA) emphasized that the problem of uniformity of cooking exists in all types of cooking equipment and not just microwave ovens.

Raymond Beaulieu (FDA) felt that the time/temperature relationship in cooking is an important factor when considering microbiological growth. He stated that a performance standard for uniformity would provide a "base-line" that the regulatory community could then use to define time/temperature requirements.

Based on the fact that an ASTM Standard is currently being developed to evaluate the uniformity of microwave ovens, Michael Elliott (Elliott-Williams Co.) presented the following motion which was unanimously accepted.

> **Motion**: Table further discussion on performance testing of microwave ovens. NSF staff shall monitor the progress of the ASTM proposal and keep the Joint Committee informed.

Cleanability

The Joint Committee was asked to review proposed changes to the material cleanability test method in Standard 51 submitted by the Ad Hoc Committee. The major proposed change to the method was to eliminate the controls that applied to specific zones and review all materials against the rotationally molded polyethylene control.

Jim Brown provided a historical perspective on why rotationally molded polyethylene was used as a control for ice bins only. Jim also stated that to accept the Ad Hoc committee proposal would allow for the potential of using a polyethylene material in such devices as soft-serve machine hoppers which would be a mistake in his opinion. Harvey McPhee (NCLEHA) expressed concern that the proposal would lower the current standard of cleanability and did not agree with the elimination of the stainless steel control.

Milton Schwartz (FEMA) presented the following motion:

> **Motion**: The pass/fail criteria for cleanability shall not be changed.
> Yes: 26 No: 1

The negative vote was cast by David Jensen (Cornelius Co.). Mr. Jensen's negative was based on the requirements for splash zone materials being more stringent than the requirements for the food zone areas of an ice bin. This issue will be presented to the Task Group reviewing Standard 51.

Pizza Screens

The Joint Committee was asked to review the design of a pizza screen manufactured by Marino Mfg. and Sales for a potential exemption to the cleanability and joint and seam requirements of Standard 2. Timothy Pilzner (Marino Mfg.) explained to the Committee that the only way to manufacture the pizza screen was to use the framing around the circumference of the screen and, based on the high heat application, bacteriological growth should not be a concern. Robert Schuler (Domino's Pizza) agreed with Mr. Pilzner and referenced the studies provided in the Joint Committee meeting package.

Roger Fakes (Auto-Chlor Systems) agreed that from a practical standpoint there is no health risk, but the issue is complying with the construction requirements of the Standard. There was general consensus that the integrity of the Standard should not be compromised. Raymond Beaulieu stated that the FDA has issued an interpretation that the pizza screen does not comply with the Codes.

Harvey McPhee presented the following motion which was unanimously accepted.

> **Motion**: The pizza screen shall not be accepted based on the design not being easily cleanable.

Michael Elliott presented the following motion in an effort to provide Certification for utensils such as the pizza screen without jeopardizing the integrity of the current standards:

> **Motion**: NSF should consider the development of a standard for utensils or include special requirements in a current standard.
> Yes: 20 No: 5 Abstention: 2

The negative votes were all from public health representatives and were based on the fact that cleanability should not be sacrificed.

TAB F8

Information Paper
Plastic Cutting Boards

Jeff Veden

Joint Committee Information Paper

News of events or activities related to the field of interest of the Joint Committee

Subject:

As the President of Cutting Board Resurfacing, LLC, I work with every brands of NSF approved, plastic cutting boards found in commercial kitchens. There are 2 primary types of plastic cutting boards being used: 1) Extruded HDPE and 2) Injection Molded "Co-Polymer." The extruded HDPE cutting boards are much more durable than the injection molded boards. Over the last several years, I have become increasingly concerned with the enormous amount of plastic and rubber that we find missing on the injection molded, NSF approved, cutting boards. The NSF/ANSI Standards and the products that earn the NSF (and FDA) certification are supposed to meet Federal Food Code regulations. This is especially true for "PRIORITY ITEMS" such as primary "FOODCONTACT SURFACES." The reason that I have submitted this Information Paper today is to raise attention and provide material evidence that will prove that all types of injection molded cutting boards are fundamentally unsafe and pose a grave and unnecessary risk to public health and safety. As such, they should be immediately recalled and no longer allowed to be sold for use as cutting boards.

Brief statement of information provided:

To the best of my ability, I have attempted reference the most relevant NSF standards. All these standards should be familiar to this audience. However, I have also included the textual references for most of the relevant Federal Food Code -2017 regulations. I hope this adds clarity and a reference point for comparative analysis. I have also brought with me some samples and provided photographs of the problems we see everyday in the kitchens of Arizona and Southern California.

Let me begin with Section 4 of the Federal Food Code which states:
Materials that are used in the construction of UTENSILS and FOODCONTACT SURFACES of EQUIPMENT may not allow the migration of deleterious substances or impart colors, odors, or tastes to FOOD and under normal use conditions shall be: P

N0TE Inserted for emphasis: (A "P" or "Pf" designation after a paragraph or subparagraph indicates that the provision within that section is a PRIORITY ITEM or PRIORITY FOUNDATION ITEM. Any unmarked provisions within a section are CORE ITEMS.)

(A) Safe; P

(B) Durable, CORROSION-RESISTANT, and nonabsorbent;

(C) Sufficient in weight and thickness to withstand repeated WAREWASHING;

(D) Finished to have a SMOOTH, EASILY CLEANABLE surface; and

(E) Resistant to pitting, chipping, crazing, scratching, scoring, distortion, and decomposition. (Federal Food Code – 2017, 4-101.11, pp. 113-114)

If we analyze this regulation and the closest corresponding standard, NSF 51-2017, Sec. 4.1.1, it seems to defy logic that a soft, artificially colored, petroleum-based, injection molded, co-polymer, thermoplastic cutting board was able to successfully pass this test. But it didn't just pass, it continued to navigate the gauntlet of other regulations and standards and was finally awarded both NSF and FDA certifications. Because this product is less expensive to make and has a shorter functional lifespan (by purposeful design) it has pushed extruded plastic hand boards completely out of the primary distribution chains, leaving commercial kitchens with no other choice. The few companies that mass produce these injection

molded boards proudly proclaim that these injection molded boards are NSF and FDA approved and they are laughing all the way to the bank while public health and safety has been put in jeopardy.

As will be demonstrated in the pictures presented and the actual samples that I have brought with me, it should be clear that microscopic to large pieces of injection molded cutting boards are constantly and consistently "becoming a component of our food." **Although, it has been argued that the co-polymers used in the injection molded cutting boards are "food safe" is does not mean that they should be considered FOOD!** In this study, titled: Most Plastic Products Release Estrogenic Chemicals: A Potential Health Problem That Can Be Solved published in Environ Health Perspect. 2011 Jul 1; 119(7): 989–996.Published online 2011 Mar 2. doi: 10.1289/ehp.1003220. They conclude that, "Many scientists believe that it is not appropriate to bet our health and that of future generations on an assumption that known cellular effects of chemicals having EA released from most plastics will have no severe adverse health effects (Gray 2008; Talsness et al. 2009; Thompson et al. 2009)." This is just one of many peer reviewed, scientific studies that basically confirm the obvious, that it is a bad and potentially hazardous idea for humans and virtually every other living organism to willingly, accidentally or incidentally ingest any amount of plastic.

Recently, microplastic waste has been making headlines. It is being found in every ecosystem that has been tested (ie. Deepest parts of the oceans, rivers, streams, on the highest mountains, in the atmosphere and everywhere in between). This is unacceptable because it is avoidable. To make matters even worse, it was recently estimated that every person on the planet is inadvertently consuming, on average, about 5 grams of plastic each week or 9.2 oz per year. Please follow this link for some staggering figures on plastic production, waste and ingestion. Although this article has not been peer reviewed, most of the data referenced has been. https://wwwwwfse.cdn.triggerfish.cloud/uploads/2019/06/dalberg-advocacy-analysis_for-web.pdf . Please let that soak in. It is staggering.

Consider this, the average 18"x24"x.5" hand board weighs 7.5 lbs. This is equal to 611 grocery bags or 8,400 single use plastic straws! Given recent efforts to ban plastic bags and straws, it stands to reason that if these facts were common knowledge, the public would demand that single use, injection molded cutting boards to be banned from being used and/or manufactured. This noble effort may result in hundreds of millions of pounds worth of straws and bags being eliminated from the landfills and the environment. But, this figure pales in comparison to how many billions of tons of plastic cutting board waste that are being unnecessarily dumped in our landfills each year with little to no public awareness. All of the plastic waste in the world combined is quickly becoming a humanitarian and environmental crisis.

So, it stands to reason that if pieces of the soft, injection molded cutting boards are likely entering the food chain and is generally accepted that it is unhealthy to ingest any amount of plastic, lets look at part (B). After observing injection molded cutting boards in real world use, it is evident that they do not meet the definition of "durable, CORROSION-RESISTANT and nonabsorbent." The material is too soft and quickly develop deep cut marks with regularly intended use.. We always find missing micro-plastic material where the primary cutting task is performed. But we also find small slivers to chunks of plastic peeling off these boards.

A huge additional concern regarding durability has emerged within the past few years. As a "safety" improvement (or marketing gimmick) companies have added rubber, "non-slip" pads to the corners on both sides of these cutting boards. During normal use and ware-washing, pieces of these rubber feet start falling off. They get cut off during prep work especially, when chefs slide cut items off using their knives. Additionally, the feet get caught on storage racks and in ware washing systems. It is also possible that cleaning/sanitizing chemicals along with wash temperatures could be causing material degradation and/or the bonds to weaken, resulting in the failures. (NSF/ANSI 51 – 4.1.1, 12)

Regular, daily wear quickly creates a surface that is no longer “SMOOTH” or “EASILY CLEANABLE”. This injection molded material is easily scratched and scored by repeated knife cuts. Pits and chips regularly develop and can be easily observed with the naked eye. Microscopic investigation reveals a porous, mesh of decomposing plastic. The sanitizer is unable to penetrate the few micron wide cracks and effectively kill the bacteria, viruses, molds and other micro-organisms that thrive at these levels. The surface of the board may indicate a 5 log kill, but just under the surface, everything is alive and multiplying. With the first pass of the knife, recontamination of the surface and possible cross-contamination of the food begins again. The food code has numerous references supporting this, such as:
“Cutting surfaces such as cutting boards and blocks that become scratched and scored may be difficult to clean and sanitize. As a result, pathogenic microorganisms transmissible through food may build up or accumulate. These microorganisms may be transferred to foods that are prepared on such surfaces.” (Federal Food Code – 2017, 4-501.12, p. 561)
“For example, equipment in disrepair, such as a cutting board with deep grooves/cuts, makes effective cleaning difficult or impossible, and thereby could introduce a bacterial hazard onto food that comes into contact with the board.” (Federal Food Code – 2017, Sec. D, p.738.)
And finally, “Microorganisms may be transmitted from a food to other foods by utensils, cutting boards, thermometers, or other food-contact surfaces.” (Federal Food Code – 2017, 40602.11, p.567)

Furthermore, injection molded cutting boards are too soft to be effectively resurfaced. During the process, the shavings melt back onto the surface of the board. High density, extruded HDPE can be resurfaced many times and it maintains its resistance to warping in hot, ware washing machines. The food code even states:
“Surfaces such as cutting blocks and boards that are subject to scratching and scoring shall be resurfaced if they can no longer be effectively cleaned and SANITIZED, or discarded if they are not capable of being resurfaced.” (Federal Food Code – 2017, 4-501.12, p. 165). I find it hard to believe that NSF and the FDA purposely chose to give the same certification to injection molded plastic as it gave extruded, HDPE. How did this happen?

In my research, I came across some manufacturers of wooden cutting boards claiming that one small article referenced in the Federal Food Code - 2017 edition (and previous editions) is the procuring cause that government mandated the switch from wood to plastic cutting boards. This article is referenced under section **4-101.17 Wood, Use Limitation** on p. 365 of 767. It is the second reference entitled, Agricultural Research Service, U.S. Department of Agriculture. ARS Affirms Plastic Cutting Board Policies. Food Chemical News, December 6, 1993, pp. 56-57. They claim that it has been scrubbed from all records or never really existed. I have searched for it myself and enlisted the help of my local librarian and we were unable to find it. I have brought this to the attention of Mr. Allen Rose, NSF Standards Development Liaison. To date, I have not been able to find a copy. I find it very curious that an article cited as supporting evidence for switching from wood to plastic cutting boards has seemingly disappeared but, continues to be cited. It should be noted that in an article by the scientists largely recognized as the leaders in cutting board research, NESE O. AK, DEAN O. CLIVER, and CHARLES W. KASPAR (*1994*) Cutting Boards of Plastic and Wood Contaminated Experimentally with Bacteria. Journal of Food Protection: January 1994, Vol. 57, No. 1, pp. 16-22. In their conclusion, they state, “These results do not support the often-heard assertion that Plastic cutting boards are more sanitary than wood.”

My only (ethical) conclusion as to how this happened is that the NSF Standards and associated safety tests only evaluated the product prior to real world use. (NSF/ANSI 2 -2018, Sec. 6, NSF/ANSI 51 – 2017, Secs. 7, 8, 9, 10, 11, 12) After reviewing these standards, I feel the tests did not consider or attempt to emulate the manufacturers or the consumers intended use. In other words, if these cutting boards had been evaluated after being used for standard intervals of time, in real kitchens, using universally accepted

scientific methodologies, they would never have been approved. In fact, they likely wouldn't have even passed the "commonsense" test!

I feel strongly that the committee should consider adding a new standard that would require real world observations of every certified product to ensure that the standards that were tested and the methodologies used accurately anticipated the application and use of the product in real world. I think that if I had access to the tests used to grant NSF approval for injection molded, cutting boards that I could easily identify ways in which the tests were flawed. I think that the real-world examples of injection molded cutting that I have brought as exhibits, prove beyond any reasonable doubt that they should have never been approved as primary food contact surfaces for slicing, dicing and chopping food on.

Before concluding, I have an ethical and moral obligation to provide full-disclosure and transparency, It would be easy to accuse me of having a fundamental conflict of interest. After all, I am in the business of resurfacing and selling extruded, food grade High Density Polyethylene (HDPE). This material is also NSF/ANSI and FDA approved. We have developed a proprietary technique for shaving off the top layer of rough, porous and uncleanable layer of plastic. We proudly restore the boards to like new condition meeting all the Food Code regulations. All the contaminated material that we remove during resurfacing must be discarded in the landfill because it is considered a "biohazard" by all the plastic recycling companies. But it is about 1/5 of the material volume when compared to every injection molded board that is discarded. Furthermore, our shavings are deposited in a compactable form that greatly reduces its comparative volume. We humorously and sincerely claim that we are trying to save the world one cutting board at a time. However, even though extruded HDPE is much more durable, safe and it can be resurfaced, it also arguably fails to fully meet the intent of the relevant standards. I feel, that it is in the best interest of public health and safety, if all plastic being used as primary food contact/ cutting surfaces was eliminated. I am actively trying to find an existing replacement material or help to invent a new material that could provide a truly safe, primary food contact and cutting surface. If you know someone that has mad material design skills, let me know. I invite you to visit our website at www.cuttingboardresurfacing.com to better understand what we do. I can also be reached for questions, comments or suggestions at cuttingboardresurfacing@gmail.com .

Therefore, if this committee agrees with my recommendation, that all injection molded cutting boards should be recalled, the manufacturing halted and the uncontaminated inventory should be recycled and repurposed, it would stand to reason that extruded plastic could possibly meet the same fate. Of course, this would put me out of business, and I would sadly and gladly be forced to close my company. I hope that you agree that this potential and likely sacrifice essentially eliminates all potential conflicts of interest. So, who wants to join me for dinner tonight?

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Please submit to: Al Rose, arose@nsf.org

Please scroll down for pictures.

Straight edge placed across an injection molded hand board. Can you see the gap demonstrating the volume of missing micro-plastic that has worn away during normal use after just a few months? New this board weighed approximately 7.5 lbs. Used, it weighed just over 6 lbs.

This is the other side of the same board above showing about the same amount of wear but with strips of missing material.

A "non-slip" rubber pad that has been cut with a knife. Part of the pad has already fallen off. These pads do little to hold the board in place because most stainless steel countertops have been dented or are not perfectly flat. Meanwhile, where is this material going? The NSF logo is visible in the bottom right corner.

This closeup picture of shows a missing chunk of injection molded plastic that has chipped off. Deep cut marks demonstrate how this material begins to decompose. Sanitizer is unable to penetrate to the bottom of the cut mark so micro-organisms thrive below the surface.

Small pieces of injection molded plastic sloughing off a brand new injection molded plastic cutting board after only a few passes of the knife.

Another example of missing material from a "non-slip" pad.

Joint Committee Information Paper

A deep cut with small pieces of plastic just waiting to enter the food chain.

It does not take long before an injection molded cutting boards begins to slough off plastic and is impossible to properly clean and sanitize.

TAB SET H

Other New Business

TAB SET I

Meeting Wrap Up

Next meeting date proposed for August 19-20, 2020

Adjournment