



**A Handbook for the
Forensic Standards
Development Public
Comment Process**

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Table of Contents

Purpose of the Guide	<u>4</u>
Organization of Scientific Area Committees for Forensic Science	<u>6</u>
Academy Standards Board	<u>16</u>
ASTM International	<u>24</u>
National Fire Protection Association	<u>31</u>
American Dental Association	<u>37</u>
Audio Engineering Society	<u>43</u>
How to Craft an Effective Comment	<u>50</u>
References	<u>58</u>

Purpose of the Guide

In 2006, the National Institute of Justice (NIJ) published *Status and Needs of Forensic Science Service Providers: A Report to Congress*, which expressed the need for standardization in various forensic disciplines.¹ Three years later, the *National Research Council's report Strengthening Forensic Science in the United States: A Path Forward* discussed the benefits of standards and the need for implementation.²

There are many organizations that develop and disseminate forensic science standards, guidelines, and best practice recommendations. The development of forensic science standards and related documents is a collaborative process, involving many stakeholders, experts, and members of the public with direct and material interest. The collaboration is achieved through inter-organizational efforts and public comment periods. During public comment periods, drafts of forensic documents are available for review and feedback. These standards can hugely impact the practice of various forensic fields; however, they may not always represent the scientific consensus or consider social, legal, and ethical implications. This is why it is important for various forensic experts and stakeholders to be involved in this process and provide comments.

Each organization has its own forms, formats, policies and procedures that ultimately dictate how it receives and adjudicates public comments. Hence, some individuals may find it daunting and confusing to navigate this process. The organizations covered in this handbook include the Organization of Scientific Area Committees for Forensic Science (OSAC), American Academy of Foren-

sic Sciences Standards Board, American Society for Testing and Materials International, National Fire Protection Association, American Dental Association, and Audio Engineering Society. This handbook was created in an effort to ameliorate the public comment process. The purpose of this handbook is to provide an elaborate look at the standard development processes of forensic-oriented organizations and provide a list of things to consider when writing a comment. These considerations were formulated after surveying members of OSAC and forensic SDOs and were the most mentioned or recommended items.

How to Use the Handbook

The first half of the handbook provides a detailed description of the organizations' structures and standard development processes. The reader is advised to review this section to understand relevant organization-specific requirements and policies. The second half of this handbook can be used to direct individuals on how to craft effective comments.

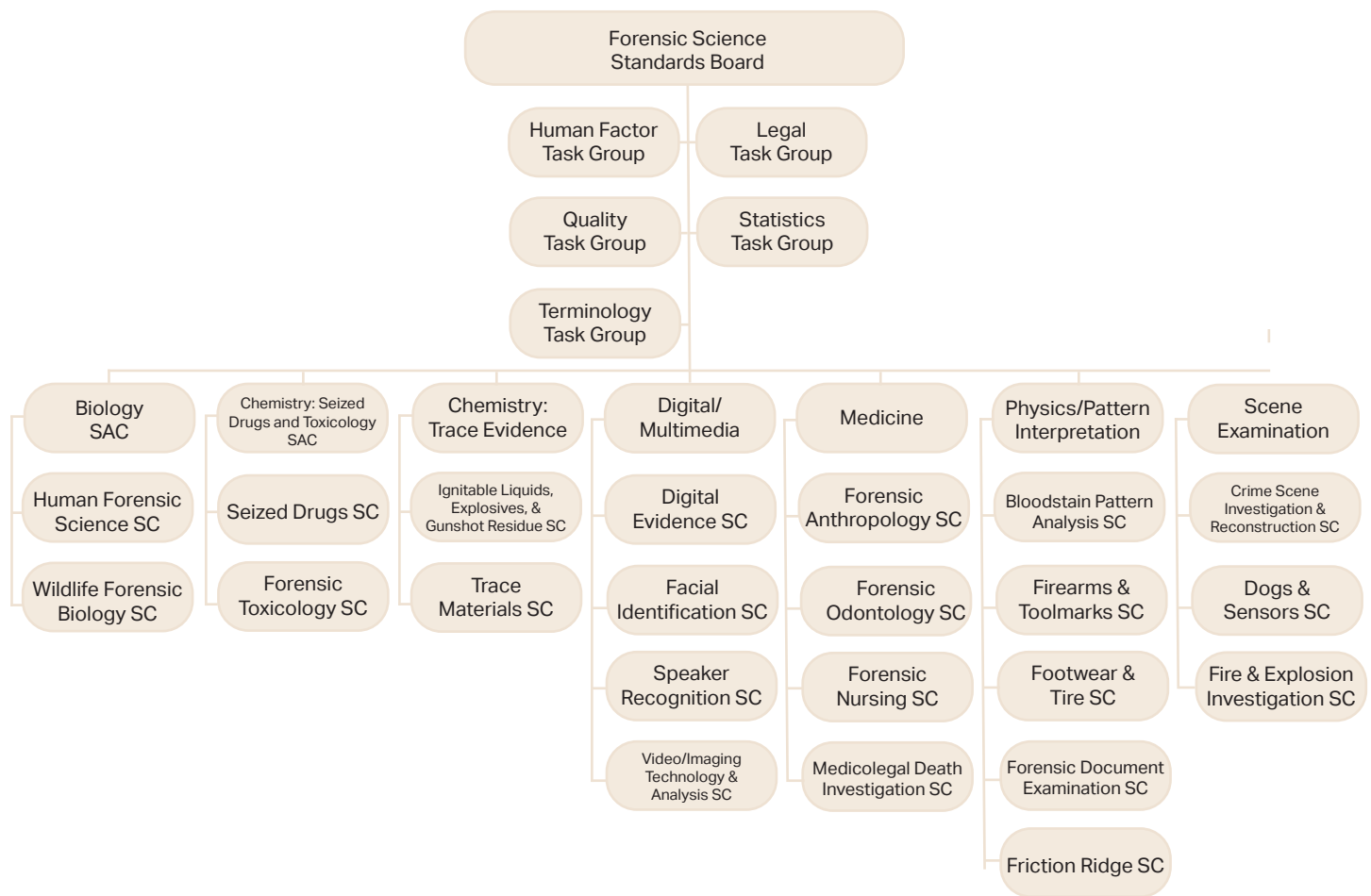
Organization of Scientific Area Committees for Forensic Science

Objective

The [Organization of Scientific Area Committees \(OSAC\) for Forensic Science](#), administered by the National Institute of Standards and Technology (NIST), was established to improve and strengthen the field of forensic science through standards.³ The organization seeks to accomplish this goal by facilitating the development of consensus-based standards, guidelines, and best practice recommendation documents for widespread adoption and implementation throughout the forensic science community.⁴ Once these documents have gone through multiple approval processes, they are added to the OSAC Registry and recommended by OSAC for voluntary adoption by forensic science service providers (FSSPs).³

OSAC Hierarchical Structure

OSAC is a multilevel organization with a hierarchical structure. The forensic science standard board (FSSB) is at the top of the hierarchy. Seven scientific area committees (SACs), 22 discipline-specific subcommittees (SCs), and FSSB Resource Task Groups report to the FSSB. The twenty-two discipline-specific subcommittees (SCs) report to the SACs.⁵



Forensic Science Standards Board

The FSSB communicates to NIST about the management and administration of OSAC. The FSSB has three main aims.⁶ The first aim is to facilitate the dissemination and implementation of standards that will increase consistency within the forensic science field and support the development of quality

benchmarks. The second aim is to address issues that come up during the OSAC standards development process, and the last aim is to coordinate the activities of SACs, SCs, and Interdisciplinary Committees. Additional responsibilities include providing strategic direction for OSAC, developing OSAC protocols, identifying gaps in existing standards, reviewing proposed and published standards for addition to the OSAC Registry, ensuring that standards do not conflict with one another, maintaining a flow of communication between the SACs, SCs, and Interdisciplinary Committees, and more.

The membership of the FSSB consists of the Chairs of each SAC, one representative from each of seven professional forensic science organizations (American Academy of Forensic Science, American Society of Crime Laboratory Directors, Association of Firearm and Toolmark Examiners, Association of Forensic Quality Assurance Managers, International Association for Identification, National Association of Medical Examiners, Society of Forensic Toxicologists, Inc.), one NIST representative that is an ex-officio member, and a maximum of six members-at-large. The members-at-large can be individuals who are experts in human factors, law, quality management, statistics, or a specific forensic science research area. Two-thirds of the membership constitutes a quorum. A two-thirds vote is required to approve a standard for inclusion on the OSAC Registry and required to change the size or structure of FSSB. Each member has one vote and voting can take place in the FSSB meetings or electronic polls.

OSAC Scientific Area Committees (SACs)

There are seven SACS — Biology, Chemistry: Seized Drugs and Toxicology, Chemistry: Trace Evidence, Digital/Multimedia, Medicine, Physics/Pattern Interpretation, and Scene Examination.⁷ The SACs manage the activities and priorities of the discipline-specific subcommittees and coordinate with them. The SACs present and distribute information to the public about their subcommittee's activities and provide feedback from the public regarding these activities to the FSSB.

The role and responsibilities of a SAC include overseeing the work of its subcommittees, identifying gaps in existing standards, being a liaison between the subcommittees and the FSSB,

supporting other SACs and subcommittees with standards development, ensuring that standards are not redundant and conflicting, providing advice on the creation, merger, or annulment of subcommittees, and approving subcommittee member appointments.⁸ Two-thirds of the membership constitutes a quorum. Each member has one vote and voting can take place in the SAC meetings or electronic polls.

OSAC Subcommittees

There are 22 discipline-specific subcommittees.⁹

Managed by the Biology SAC

- Human Forensic Science SC
- Wildlife Forensic Biology Subcommittees

Managed by the Chemistry: Seized Drugs and Toxicology SAC

- Seized Drugs SC
- Forensic Toxicology SC

Managed by the Chemistry: Trace Evidence SAC

- Ignitable, Explosives, and Gunshot Residue SC
- Trace Material SC

Managed by the Digital/Multimedia SAC

- Digital Evidence SC
- Facial Identification SC
- Speaker Recognition SC
- Video/Imaging Technology & Analysis SC

Managed by the Medicine SAC

- Forensic Anthropology SC
 - Forensic Odontology SC
 - Forensic Nursing SC
-

- Medicolegal Death Investigation SC

Managed by the Physics/Pattern Interpretation SAC

- Bloodstain Pattern Analysis SC
- Firearms & Toolmarks SC
- Footwear & Tire SC
- Forensic Document Examination SC
- Friction Ridge SC

Managed by the Scene Examination SAC

- Crime Scene Investigation & Reconstruction SC
- Dogs & Sensors SC
- Fire & Explosion Investigation SC

The subcommittees draft and review standards to meet certain requirements. They also collaborate with standards developing organizations (SDOs) to move standards through the formal standards development process. Subcommittee members consist of subject matter experts that propose, enhance, and review standards for placement on the OSAC Registry. Some of their other responsibilities include finding gaps in existing standards, communicating with their SACs, providing input for the creation, merger, or annulment of subcommittees, and managing subcommittee task groups. In addition to standards, other work products created by the subcommittees may include standardization roadmaps, process maps, statements of research needs, and defining terms for the OSAC Lexicon.

Each subcommittee must have members with expertise in law, quality assurance, human factors, and statistics.⁹ Each subcommittee has a member, affiliate, or designee that serves as a liaison between the subcommittee and an SDO consensus body (e.g., ASB) or SDO subcommittee (e.g., ASTM). Membership varies by subcommittee but generally targets 70 percent practitioners (20 percent federal, 30 percent state and local, and 20 percent civil and other) and 30 percent researchers, accreditation and certification specialists, educators, quality specialists, development technology partners, members of the legal community, and other relevant non-practitioners. Two-thirds of the

membership constitutes a quorum. A supermajority of two-thirds is required to forward a standard for consideration. However, a simple majority vote (51 percent or higher) is needed to pass a motion. Each member has one vote and voting can take place in subcommittee meetings or electronic polls. A member's vote can be replaced by a proxy's vote.

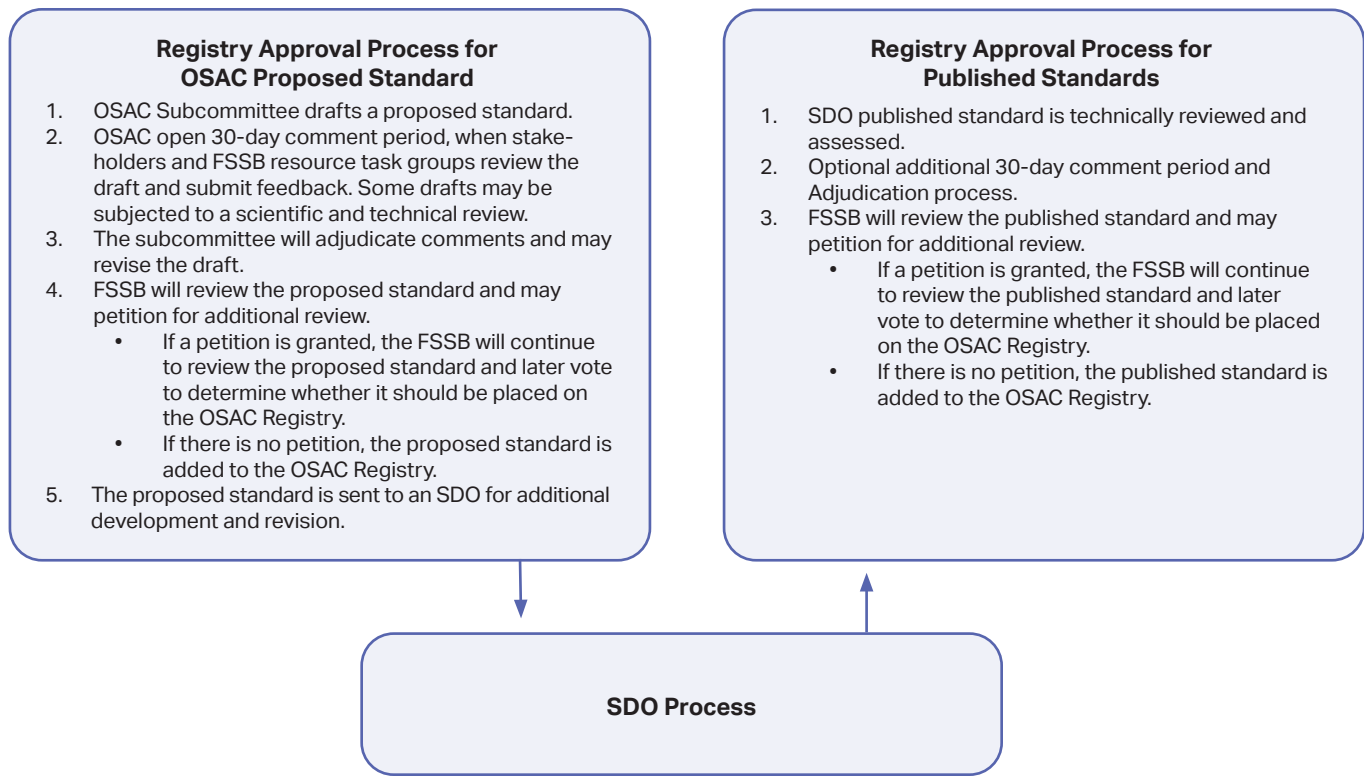
Resource Task Groups

The resource task groups (RTGs) were established by the FSSB to assist SACs and subcommittees. They have area-specific expertise and provide an opportunity for experts to collaborate on issues being addressed by OSAC committees. The five FSSB task groups are the Human Factors, Legal, Quality, Statistics, and Terminology Task Groups.¹⁰ Two-thirds of the membership constitutes a quorum. The voting rules are determined during the first task group meeting and affiliates cannot be excluded from voting. A proxy may vote in place of a member. Each member has one vote and voting can take place in the task group meetings or electronic polls. member has one vote and voting can take place in the task group meetings or electronic polls.

Document Approval and Public Comment Process

OSAC proposed and SDO published standards are considered for the OSAC Registry using two processes. The first process is the "Registry Approval Process for OSAC Proposed Standards," which is used to assess drafted standards before they are sent to an SDO.¹¹ The other process is the "Registry Approval Process for Published Standards," where a standard that is already published by an SDO will undergo further review to determine if it should be placed on the Registry.¹²

See next page for registry approval process.



Registry Approval Process for OSAC Proposed Standards

After an OSAC Proposed Standard is drafted, OSAC opens a 30-day comment period. During that period, stakeholders in the forensic science community and FSSB Resource Task Groups are encouraged to review and submit feedback. For some drafts, an independent cohort of subject matter experts will also review the draft. Drafts that cover method development, method validation, methods (practices and procedures), quality assurance, as well as report and testimony will undergo this Scientific and Technical Review (STR).¹³ This group of subject matter experts will review an OSAC Proposed Standard and submit comments on it during OSAC’s 30-day open comment period.

After the comment period closes, the subcommittee reviews and adjudicates comments from the public, resource task groups, and STR. The subcommittee may upgrade the draft based on the inputs received from the stakeholders, other members of OSAC, and the STR. Subcommittees can choose to discuss the comments submitted by the subject matter experts during a “Comment Discus-

sion” meeting. The STR is complete after the “Comment Discussion” meeting or if the meeting is not needed.

Once the adjudication and revision process are over, the subcommittee will vote to move the draft to the FSSB for review. The FSSB is supplied with the proposed standard and the adjudicated comments. They will review the material and can submit a petition for additional review. If a petition is granted, the board will conduct a further review, discuss the proposed standard, and later vote on whether to place it on the Registry. If there is no petition, the proposed standard is directly placed on the Registry and sent to an SDO for additional development and revisions.

Registry Approval Process for Published Standards

This process begins with an SDO published standard. The document is technically reviewed and assessed to determine if it should be placed on the OSAC Registry. There may be an additional OSAC-based 30-day comment period. However, this step can be met during the SDO’s public comment period. If OSAC can document the SDO’s public comment period, an additional comment period is not required. After the close of the comment period, the subcommittee will adjudicate comments and vote to move the standard to the FSSB review process. The FSSB is given an opportunity to review the published standard and any adjudicated comments. If a petition for more review is submitted and granted, the standard will be discussed and members of the FSSB will vote to determine if the published standard should be placed on the Registry. If no petition is made, the published standard will be listed on the Registry.

Priorities for Standards Development

SACs and SCs can approach the development of a standard from multiple directions. They can decide to create a single standard that covers many related topics or only one topic. A standard can be discipline-specific or interdisciplinary. OSAC has identified the following topics as priorities for standards

development:¹⁴

- Competency and monitoring
- Evidence collection and handling
- Method development
- Method validation
- Quality assurance
- Examination and analysis method
- Opinion
- Reporting results and testimony

Competency and monitoring standards address educational requirements, training programs, licensing, certification, competency testing, continuing education, and proficiency testing. Evidence collection and handling standards discuss recognition training, evidence storage and preservation, chain of custody, receipt, and forensic service provider disposition. Method development standards provide a list of topics that need to be optimized such as metrology traceability, calibration model, equipment specification and parameters, data interpretation, and more.

Moreover, method validation standards discuss analyses that must be conducted, information that must be included, and topics that must be addressed during the validation process. Quality assurance standards dictate requirements relating to quality control, review of results, and metrological traceability. Examination and analysis methods standards are the most diverse. They cover topics such as sample type suitability, quality control measures, equipment requirements, method limitation, data and calculations, relevant literature references, and more. Opinion standards detail minimum requirements for the development of an opinion. Lastly, reporting results and testimony standards specify language to be used in written reports and testimony as well as discuss potential bias, limitations, and basis for interpretation or opinions.

OSAC Comment Submission

OSAC encourages stakeholders in the forensic science community to provide feedback on the OSAC Proposed and SDO published standards being considered for the OSAC Registry. Stakeholders are encouraged to visit OSAC's ["Standards Open for Comment"](#) webpage where instructions are available for how to submit comments on both OSAC Proposed and SDO published standards. In addition to providing information about standards open for comment at OSAC, this webpage also consolidates the standards that are open for comment at SDOs.

Academy Standards Board

Objective

The [American Academy of Forensic Sciences Standards Board, LLC \(ASB\)](#) was established in 2015 as a subsidiary of the American Academy of Forensic Science (AAFS) and was accredited by the American National Standards Institute (ANSI). ASB produces consensus-based standards for the forensic science community, within an ANSI accredited framework, as well as provides training to support the standards.

ASB Structure

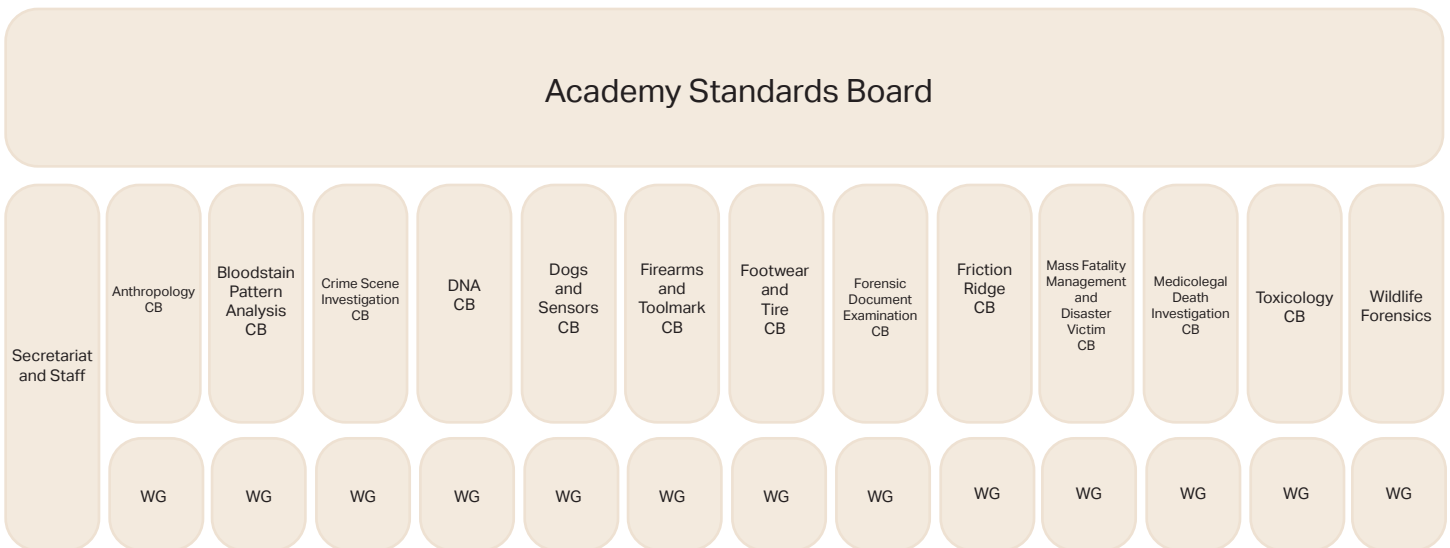
ASB comprises the Academy Standards Board (Board), Secretariat, and 13 Consensus Bodies.¹⁵

The CBs are as follows:

- Anthropology
- Bloodstain Pattern Analysis
- Crime Scene Investigation

- DNA
- Dogs and Sensors
- Firearms and Toolmark
- Footwear and Tire
- Forensic Document Examination
- Friction Ridge
- Mass Fatality Management and Disaster Victim Identification
- Medicolegal Death Investigation
- Toxicology
- Wildlife Forensics

Each Consensus Body (CB) creates subgroups that administer the standards development and adjudication process.



Academy Standards Board

The Board is composed of seven voting members that have been appointed by the AAFS Board of Directors and provides policy and procedural oversight. The Board supervises the CBs by con-

trolling their membership and approving their activities, such as revision of standards, withdrawal of standards, proposals for standards, etc. Their other responsibilities include reviewing and approving Board of Standard Review 9 (BSR-9) form, adopting policies and procedures for published standard interpretation, approving changes to the Board procedures, appointing appeal panels, and performing other actions that relate to the upkeep of ASB.

Secretariat

The Secretariat and staff manage the operation of ASB. They ensure that each consensus body follows ANSI procedure. Other duties of the Secretariat include maintaining a roster of CB members and a list of standards for each CB, submitting Project Initiation Notification Systems (PINSs) that are based on new work proposals (NWPs), as well as preparing and submitting BSR-8 and BSR-9 forms to ANSI. They also provide administrative services such as preparing meeting notices, scheduling meetings, maintaining proper documentation and record, etc.

Consensus Body

The Board oversees the establishment of the consensus bodies and strives to maintain a balance between interest categories. Individuals from organizations, companies, government agencies, and any individual with an interest in ASB, forensic science, law enforcement, etc., can volunteer to be a member of a CB. Consensus bodies can have between seven to 25 members. Members are placed into a specific interest category. There are six interest categories: academics and researchers, general interest, jurisprudence and criminal justice, producer, user-government, and user-nongovernment. Members can propose their interest category of choice, but the final decision is up to the Board. A particular interest category cannot take up more than one-third of the membership.

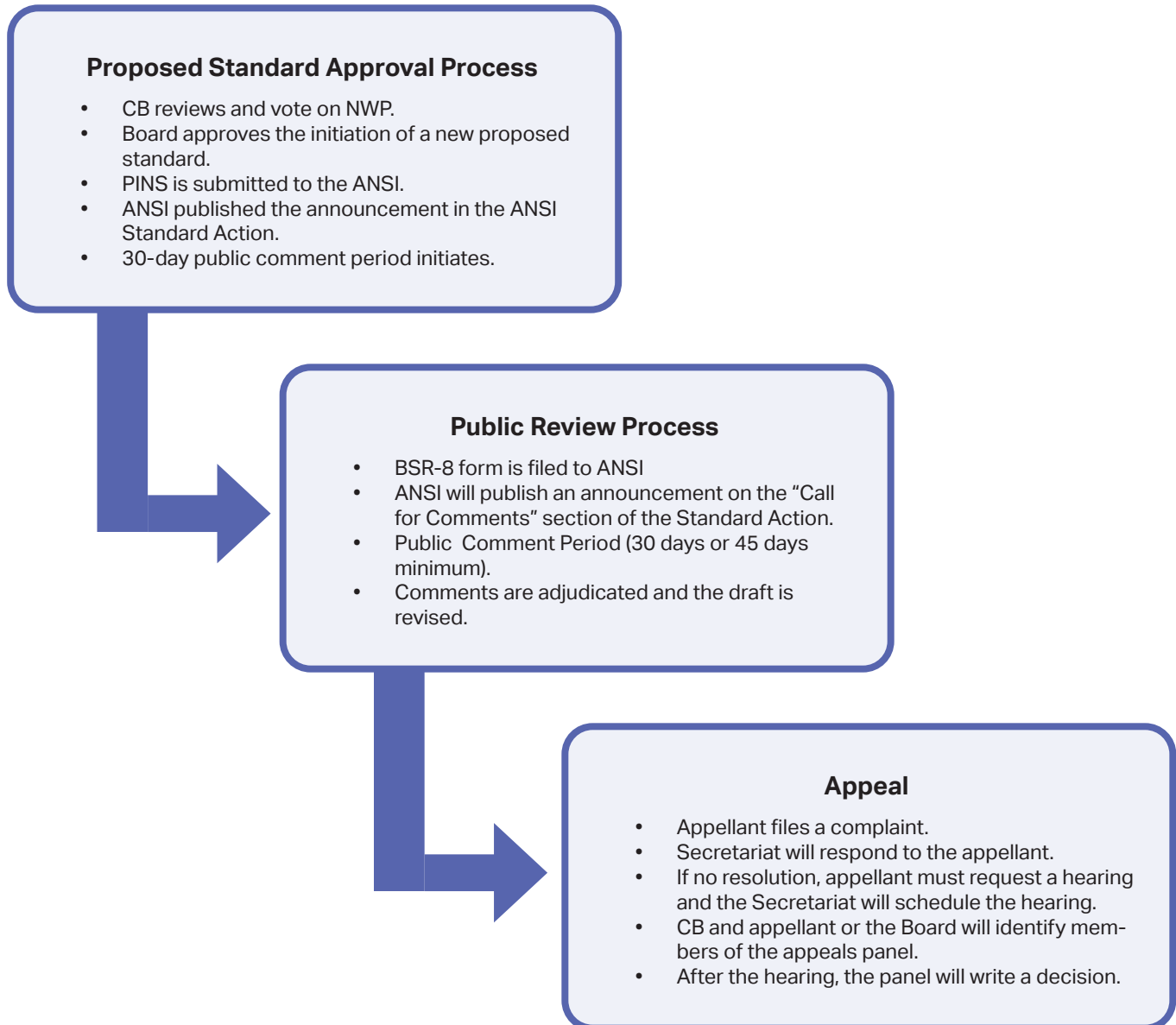
Members of a CB vote for the officers (Chair, Vice Chair, and Secretary) of that body. Responsibilities include developing and approving consensus standards and technical reports, conducting standard development according to ANSI Essential Requirements, adjudicating comments, main-

taining the accreditation status of ASB, and more. Each CB can create “subgroups” or “working groups,” which are composed of members from that body or other experts outside the CB. The subgroups have an advisory role and aid to speed up the work of the CB. Final adjudication approvals must be conducted by the larger CB. Unlike the general CB meetings, the subgroup meetings are not open to observers. Observers cannot vote.

A majority of the CB voting members constitutes a quorum. Each voting member has one vote and voting can take place in a CB meeting or an electronic poll. Organizational members can have alternative voters if those members cannot place a vote. Actions that require approval by a majority (excluding abstentions) include moving new work proposals forward to the Board, moving documents forward for public comments, resolutions of comments to standards, withdrawal of NWP, and CB officers. Actions that require approval by a two-thirds majority include publishing new standards, revisions or addendum to a part or the whole of a standard, reaffirmation of an existing standard, and issuance of an interpretation to a standard.

See next page for standard development process.

Document Approval and Public Comment Process



Proposed Standard Approval Process

New Work Proposals are forms that are completed when a proposed standard is submitted to a New Work Proposals are forms that are completed when a proposed standard is submitted to a consensus group to be developed as an American National Standard (ANS). These proposed standards usually originate from an OSAC subcommittee. The Secretariat must first accept the NWP, then the CB can review it and vote to move it to the Board for final approval. Once a request and New Work Proposal form is submitted by a consensus group, the Board can approve the initiation of a new proposed standard or the revision, reaffirmation, or withdrawal of an existing standard. When the NWP receives approval from the board, the Secretariat must submit a PINS for proposed new, revised, and national adoption. The PINS is submitted to the ANSI in accordance with ANSI Essential Requirements. The ANSI will publish the announcement in the ANSI Standards Action and a 30-day public comment period will initiate.¹⁶

If the Secretariat receives a written comment within the comment period and the comment claims that the proposed standard duplicates or conflicts with an existing ANS, there will be a mandatory deliberation among relevant stakeholders within 90 days from the comment deadline. If the deliberation does not occur within the 90-day period but there's proof that demonstrates a good faith effort to organize it, ASB is excused from compliance with the 90-day requirement.¹⁷ All Deliberation Reports are submitted to the ANSI Board of Standard Review, along with the BSR-9, for consideration, when the proposed standard is submitted to ANSI for approval. If no comments are made within the initial 30-day comment period, a PINS deliberation is not required. made within the initial 30-day comment period, a PINS deliberation is not required.

Public Review Process

To initiate the public comment period for a new proposed ANS, a BSR-8 form is filed to ANSI.¹⁸ After receiving the file, ANSI will publish an announcement in the "Call for Comments" section of the Standard Action. The proposed ANS standard will be publicly available for a minimum of 45 days or 30 days

if the standard is five pages or shorter. Public review can be requested at any phase of the standard development and can be concurrent with final balloting. Substantive changes to the proposed ANS require a listing of the changes in ANSI Standard Action. A proposed standard may undergo multiple public review and balloting processes. After the public comment period, the comments will be adjudicated, and the proposed standard will be revised by the designated working group (WG) and CB. If no comments are received or no significant changes are made to the documents, the Secretariat will file a BSR-9 form to ANSI for final approval. Once the proposed standard is approved, it becomes an ANSI/ASB standard.

Appeals

Individuals who have a direct and material interest and have been or will be negatively impacted by the procedural action of the CB or Secretariat have the right to appeal. Technical reports do not have an appeal process. Appellants can file a complaint within 30 days after the date of notification of action or any time if there is inaction. Within 30 days of receiving the complaint, the Secretariat, based on the CB's response, will write to the appellant addressing the allegations stated in the complaint. If there is no resolution between the appellant and the CB, the appellant has 10 days to request a hearing with an appeals panel. Once a hearing is requested, the Secretariat will schedule it with the appeals panel and provide, at least, a 14 days' notice to the appellant.

Appeals panels consist of three members that are selected by the Secretariat. Each member must have no direct involvement in the dispute and cannot be affected by the decision. At least two members of the appeals panel should be acceptable to the appellant and at least one member should be acceptable to the CB. If the appellant and CB do not agree with the composition of the panel, the Board will appoint the panel members by a majority vote. After the hearing, the panel will have 30 days to write a decision and the Secretariat will notify the CB and appellant.

Type of Documents

ASB develops forensic science standards, guidelines, best practice recommendations, and technical reports.¹⁹ Standards are established by consensus and may have been drafted by or through collaboration with OSAC. A consensus standard states requirements for a given process, activity, result, or product. These requirements are measurable (e.g., management responsibilities or specific operational procedures). Conformity assessment procedures can be used to assess a laboratory's conformance. Guidelines lay out information and advice on specific processes and activities discussed in a standard or BPR. They also aid users with the implementation of a standard or sets of standards. Guidelines do not establish best practices. BPRs recognize and describe optimal ways to perform a process or actions. BPRs do not set requirements. Finally, a technical report is explanatory and for information purposes only.

Format for Comment Submission

The comment template for ASB/ANSI proposed standards are posted on the ASB website or can be requested directly from the ASB. CB members can submit their comments on the template added to the CB ballot or the template can be directly requested. The template is also available on the NIST website under "Standards Open for Comment." The comments must be placed in the template or ASB will return the comments and ask for them to be resubmitted in the proper format, within 10 days of the comment deadline or ten calendar days. Commenters must provide the section of the document they are addressing, a brief discussion of the issue, and a proposed resolution to fix the issue. For non-CB members, comments must be emailed to asb@aaafs.org by the deadline. For documents that are recirculated, only comments on the revised section of the document will be acknowledged.

ASTM International

Objective

The [ASTM International](#), previously known as the American Society for Testing and Materials, was founded in 1898 by a team of scientists who began developing standards to address issues affecting the railroad industry. Since then, ASTM has continued to broaden the scope of their work into a diverse range of disciplines, with the aim of improving *performance and safety* in all industries. They have implemented new initiatives, such as providing continued education through technical and professional training courses, creating proficiency testing programs to impart quality assurance, instituting an interlaboratory crosscheck program to ensure accurate research, and providing certification services to companies for their products and staff. Committee E30 on Forensic Sciences was created in 1970 following a meeting with the American Academy of Forensic Science (AAFS). The committee has developed more than 70 standards with the help of over 400 members. ASTM was accredited by ANSI in 1995.

Structure

ASTM International Committee E30 “develops standards relevant to forensic science, including criminalistics, digital and multimedia evidence, fire debris analysis, drug testing analysis, collection and

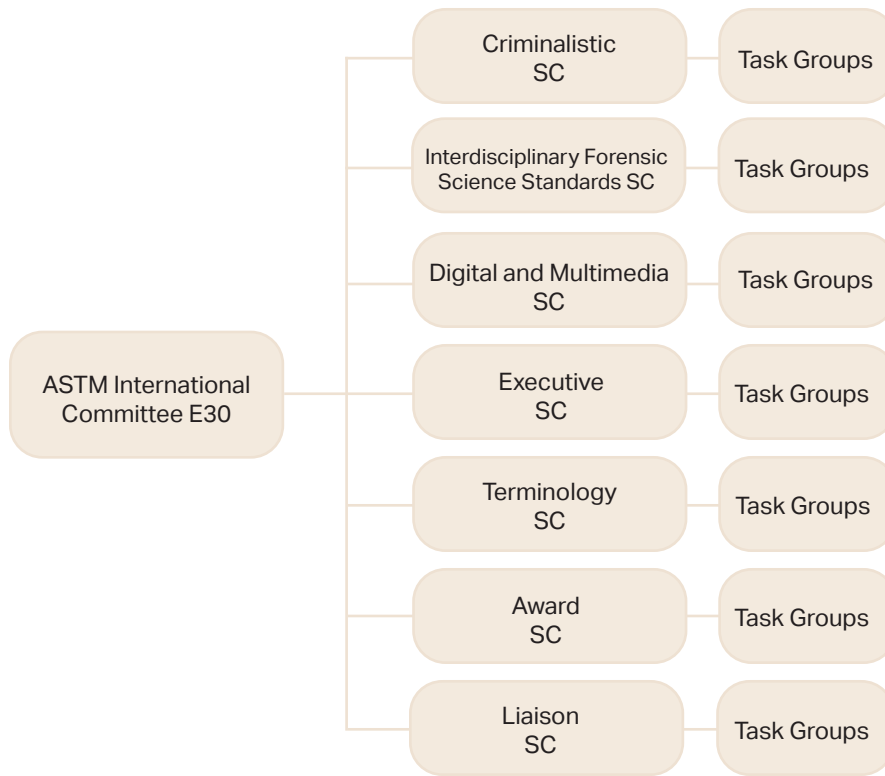
preservation of physical and digital evidence as well as reporting of findings.”²⁰ The committee is composed of 4 subcommittees that focus on specific disciplines.

- Criminalistics
- Interdisciplinary Forensic Science Standards
- Digital and Multimedia Evidence
- Terminology

The committee also includes Award and Liaison subcommittees. Other technical and administrative subcommittees can be established.²¹ Subcommittee and committee members can be classified according to voting interest. A member’s classification at the committee level may be different from their classification at the subcommittee level. The classification groups are producer (manufacturers of equipment, material, kits, etc.), user (the forensic science service providers), consumer (justice system and regulatory bodies), and general interest. The general interest classification consists of members from government, academia, testing laboratories, consulting firms, etc. One interest category cannot constitute a majority of the committee’s membership.

Participants include personnel from NIST, federal/state/local crime laboratories, public defender’s offices, law enforcement agencies, prosecutor offices, medical examiner/coroner offices, and OSAC members and affiliates. All relevant stakeholders are encouraged to volunteer; however, membership may require an annual payment. Electing to become a participating member involves voting on all ballots containing developing standards, and failure to do so can result in a retraction of one’s membership.

See next page for organizational chart.



Committee

The committee has four elected officers, i.e., a Chairman, Vice Chairman, Recording Secretary, and Membership Secretary. These individuals also serve on the executive subcommittee, along with the former committee Chairman and other subcommittee Chairmen. Biennially, on odd numbered years, the Chairman selects three members of the committee to serve on a nominating committee, with the approval of the executive subcommittee. The nominating committee will prepare the ballot of nominees to be elected by the committee. Officers serve two year terms and can renew for a second term. There is no term limit on Committee Chairs.

When subcommittee ballots are completed, the approved items are submitted to ASTM Headquarters to be reviewed by the main committee. Sometimes, a subcommittee will choose to ballot its document in the subcommittee and Main committee simultaneously. Main committee ballots are conducted by the ASTM Headquarters on a ballot cycle. At the committee levels, 60% or more of the official voting members must vote and at least 90% of affirmative votes are required for a ballot

to pass. Items submitted for main committee vote will also appear on the ASTM Web site for Society Review. Each Society member is allotted one vote per item. Committee meetings are open to visitors when technical matters regarding the development of a standard are discussed. Voting can occur via a ballot or in meetings. E30 does most of its ballot electronically and not at meetings. Official voting members can vote via a proxy if they submit an ASTM International proxy form and personally contact the prospective proxy.

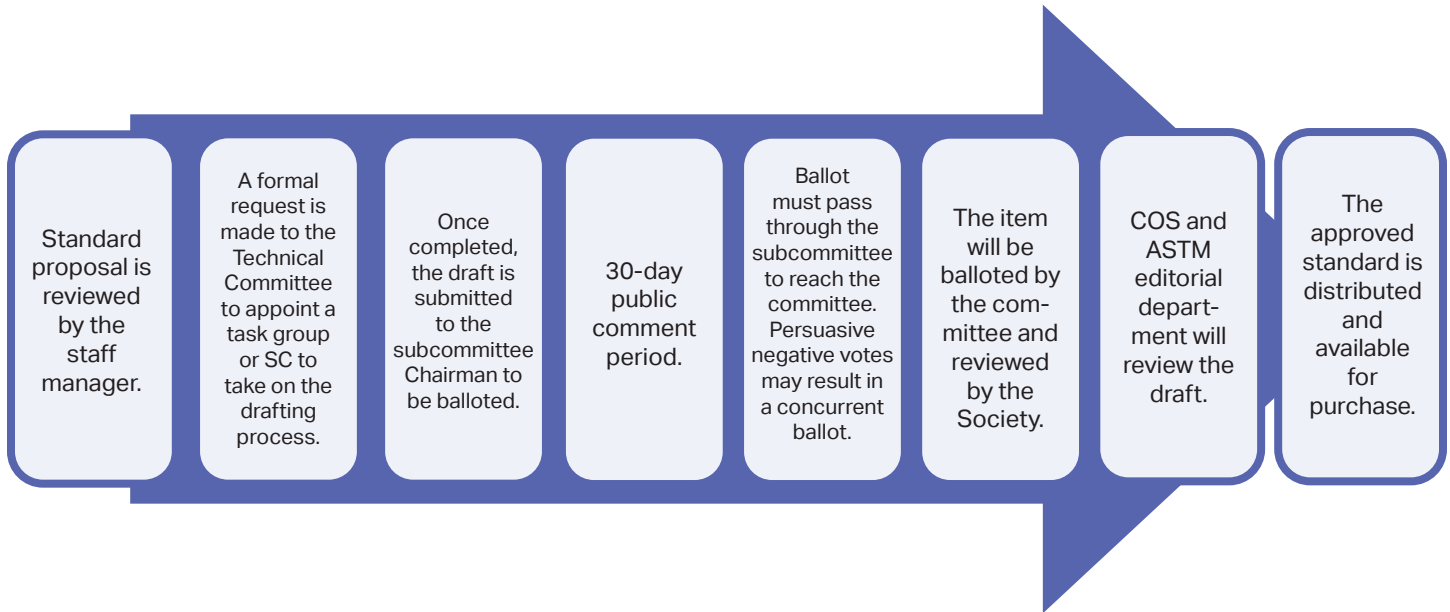
Subcommittees

Each subcommittee is composed of a Chairman, Secretary, and other officers that the Chairman deems necessary. The Chairman may appoint participating members to task groups as needed or they can be appointed by a majority approval. To pass an item at the subcommittee level, at least 60% of members must have returned the ballot and two-thirds of that population must be affirmative votes. Subcommittee meetings can be open or closed, depending on the subcommittee and whether technical matters relating to the development of a standard are discussed.

Categories of Standards

ASTM develops various types of standards.²² Standard classifications are documents that contain an arrangement or separation of material, products, systems, or services based on similarities such as origin, composition, properties, or use. Standard guides consist of a list of recommendations or a collection of information. Standard practice documents are composed of a set of instructions for carrying out specific actions that do not produce test results. Standard specifications are detailed sets of material, product, system, or service requirements. Standard test methods contain definitive protocols that produce test results. The last standard type is terminology, which are documents that provide definitions of terms, symbols, abbreviations, and acronyms.

Document Approval and Public Comment Process



When a new idea for a standard is formulated, it is proposed to the appropriate committee staff manager.²³ A PINS form must be filed to ANSI, initiating a deliberation period to ensure that the work item has not been covered in other standards work. If a need for standardization is established, a formal request is made to the Technical Committee to appoint a task group or subcommittee to take on the drafting process. Once completed, the draft is submitted to the subcommittee Chairman to be balloted. First, the committee staff manager must file a BSR-8 to initiate an ANSI public review of the new work item. The ballot sets a clear timeline with at least 30 days for public review, includes reasoning for why the standard is warranted, and identifies a technical contact. The call for public comments can be found on ASTM's website under "ANSI Public Review," ANSI's Standard Action, and other relevant platforms.

Documents can be modified when an ASTM member contacts the appropriate subcommittee Chairman, provides a rationale for the revision, and requests a task group. When the request is

approved, the new work item must be registered. The individual that requested the revision will receive an editable electronic copy of the document, make changes that must be tracked, and submit a ballot.

Ballots must pass through the subcommittee before they reach the committee, unless they are balloted simultaneously. Negative votes are handled and resolved according to ASTM Regulations. If any negatives are considered persuasive, the standard is withdrawn from the ballot for further consideration by the task group. This will result in a concurrent ballot, in which members will again vote on the document. Once an item has successfully passed through the subcommittee balloting process, it will go on to a main committee ballot and society review.

During the committee ballot and Society review, the ASTM editorial department will ensure that the standard is correctly formatted and tagged using standard generalized markup language. Finally, the Committee on Standards (COS) will review any negative comments deemed not persuasive or not related. If the COS finds that the procedural requirements of the Society have been satisfied, the standard gets approved for publication. Once a standard has been approved by the subcommittee, committee, and then the Society, a BSR-9 form will be filed to ANSI for final approval. If the proposed standard is approved by ANSI, it becomes an ANSI/ASTM standard, is given an alphanumeric designation, and receives an official approval date. About eight weeks after the standard has been approved, it will be distributed and available for purchase.

Appeal

Appeals are handled by the COS. Negative voters who believe that their vote wasn't properly handled can appeal to COS.

Format for Comment Submission

ASTM utilizes an online ballot system that notifies members of new items posted via email. The

ballot will include PDF files of each item and checkboxes for members to vote. The voting options include affirmative, affirmative with statement, negative with statement, abstain, or abstain with comment. If electing an option requiring a statement/comment, the voter has the option to upload a singular file listing all comments or submit comments in the open-ended boxes. Comments must designate the applicable section of the document, provide reasoning behind the comment, and suggest a possible resolution. The online submission page can be saved and returned to at any time. Comments must be submitted by the closing date stated on the ballot.

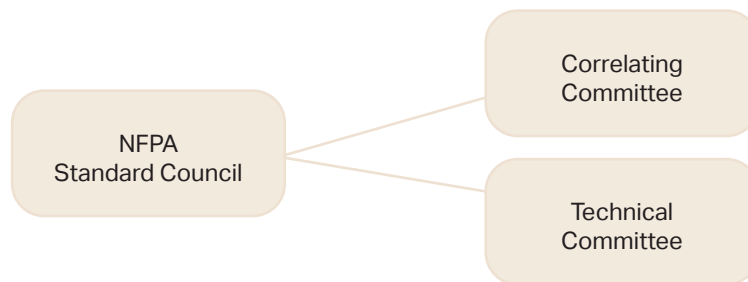
National Fire Protection Association

Objective

The [National Fire Protection Association \(NFPA\)](#) was founded in 1895 by members of the public who became concerned with the reliability of automatic sprinkler system installation. NFPA was accredited by the ANSI in 1981. Over the years, NFPA has garnered a group of over 10,000 volunteers to serve on more than 260 technical committees, and they have published more than 300 codes and standards. Their goal is to minimize risk and promote safety surrounding fire, electrical, and other hazards. This is accomplished through initiatives to educate the public, advocate for the use of their standards, train personnel on how to adhere to their regulations, and conduct research on fire analysis. The Fire Investigations Committee was created to improve the quality of information collected from fire investigations. NFPA 921, Guide for Fire and Explosion Investigations, is the main document which provides guidance on case analysis of the origin and development of uncontrolled fires.

Structure

NFPA consists of a Standard Council (Council) that monitors the standard development process. Technical Committees and Correlating Committees are created by the Council to lead the standard development process and manage conflicts.



Standard Council

Standard development activities are overseen by the NFPA Standards Council, composed of 12 members and a Chair appointed by the Board of Directors. Additionally, there is to be a Secretary and Recording Secretary to serve the Council. The Council is responsible for organizational compliance with rules and regulations, appointing members to technical and correlating committees, acting as an appeals body, and supervising standard development activities. The Council meets three times a year and serves as presiding officers for the annual NFPA technical meeting.

Technical Committee

A Technical Committee (TC) takes the lead in developing and revising standards. Appointments are based on an individual's technical expertise, professional standing, commitment to public safety, and ability to collaborate. Members are classified based on their interest category. Classification includes insurance, consumer, enforcing authority, labor, installer/maintainer, manufacturer, applied research/testing laboratory user, and special expert. A special expert is a member that does not fall in the other classifications but has relevant expertise. The TC for NFPA 921 is responsible for doc-

uments discussing fire investigation techniques, and equipment or facilities used by fire investigators to develop or verify data relating to the origin and development of hostile fires.

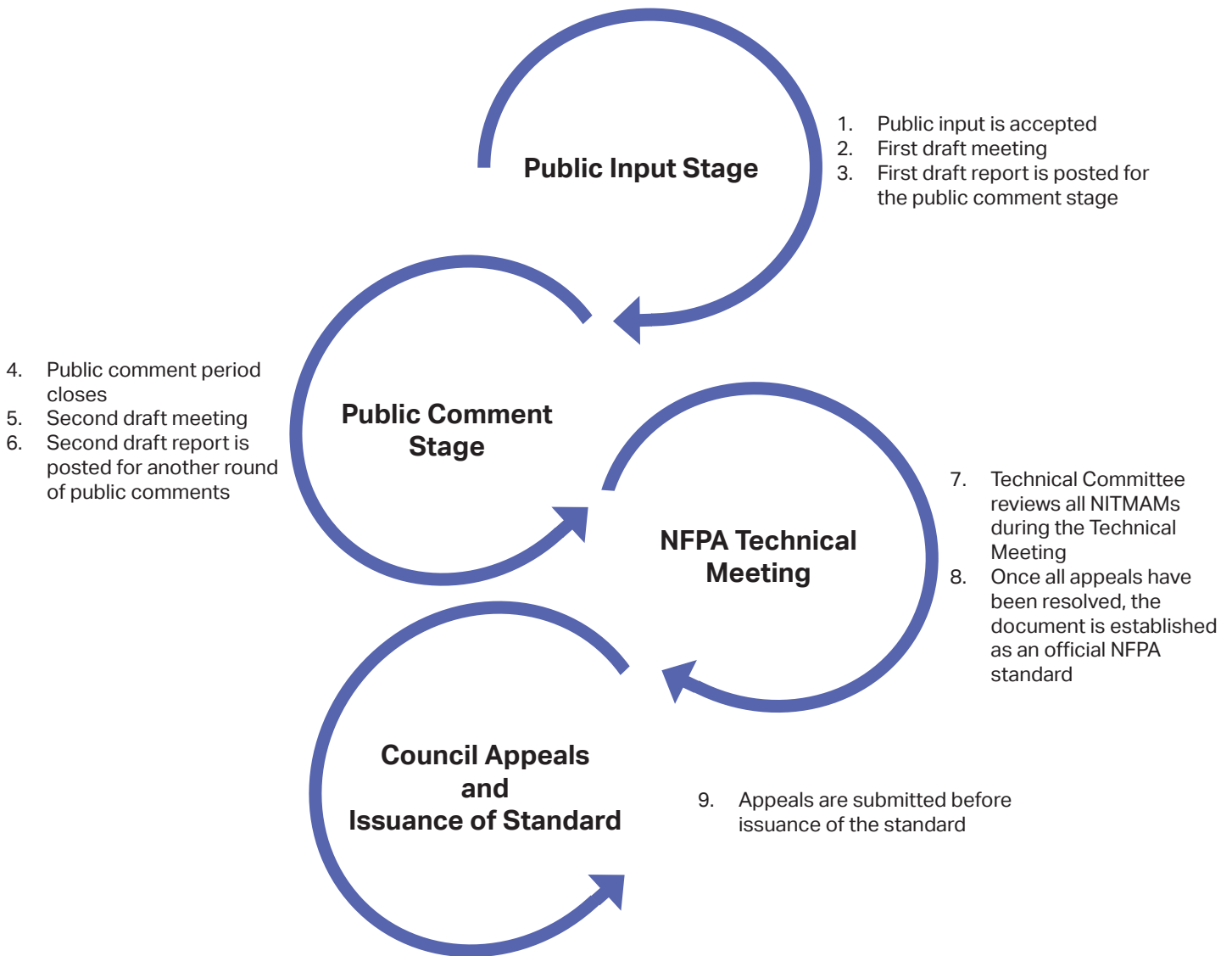
Correlating Committee

A Correlating Committee (CC) oversees the activities of a TC and manages conflict resolution and quality assurance. A CC can consist of up to 30 NFPA members representing a diverse range of interests.

Document Approval and Public Comment Process

NFPA 921 was first published in 1992 and gets renewed every three to four years.²⁴ All NFPA standards are renewed every three to five years. NFPA standards undergo multiple cycles of revision. It usually takes about two years to complete a cycle. There are four stages of a standard's cycle: public input, public comment, NFPA technical meeting, and Council appeals and issuance of standard.²⁵

See next page for standard development process.



Public Input

After the publication of the current edition of a standard, the standard’s next cycle begins. The cycle initiates with the acceptance of Public Input (PI). PI is a public notice that asks interested parties to submit feedback on an existing or committee-approved new draft. This call for public input is published on NFPA News, ANSI’s Standard Action, NFPA’s website, and other relevant platforms. The committee will review and respond to the collected feedback at the First Draft Meeting, voting on changes with the consensus being two-thirds majority. The First Draft Report will then be posted

for the public comment stage.

Public Comment

During the public comment period, anyone may submit comments on the initial draft. Upon the closing date, if public comments are received, a Second Draft Meeting will be held by the TC to review all collected comments and make revisions. The TC will also provide an action and response to each feedback. These revisions will then be balloted amongst the Technical Committee until there is approval from at least two-thirds of the group. Once the second revisions pass the ballot, the Second Draft Report is posted for another round of public review. The Report consists of the second revision, public comments with TC Actions, TC statements, TC comments and notes, correlating revisions, and ballot statements. Those who feel the standard remains insufficient may submit a Notice of Intent to Make a Motion (NITMAM).

NFPA Technical Meeting

The Motions Committee, appointed by the Standards Council, will review all NITMAMs and those deemed appropriate will be presented to the Technical Committee during the Technical Meeting. At the Technical Meeting, each NITMAM will prompt further discussion and a vote, requiring two-thirds for approval, to determine its acceptance.

Council Appeals and Issuance of Standard

The final stage in the document approval process is to hear any appeals before issuance by the Standards Council. If a standard receives no comments in either round of public evaluation, it will be deemed a Consent Standard and be sent directly to the Standards Council for review. Appeals ensure that the standard is in accordance with NFPA rules and regulations, and the standard development process has been appropriately followed. Once all appeals have been decided on, the document will be established as an official NFPA standard and become effective 20 days after the

Council's action of issuance.

Format for Comment Submission

Public input or comments may be submitted through NFPA's online submission portal, which is available on NFPA's website at www.nfpa.org/doc#next (for NFPA 921, go to www.nfpa.org/921next). The system will prompt the options to revise an existing section or propose a new section. If choosing to revise an existing section, the section should be identified from the table of contents. Once selected, the commenter will be asked to input their desired change, along with any necessary resources or graphics. The form will also provide space for reasoning for the desired change. This process should be repeated for all separate sections of the same document. A similar process is followed for the submission of NITMAMs, in which the commenter will elect whether they would like to accept or reject the document as a whole or identify specific sections.

American Dental Association

Objective

The [American Dental Association \(ADA\)](#) has “participated in the development of standards for dental materials, instruments, and equipment” since 1928. In 1970, ANSI created the American National Standards Committee (ASC) MD156 in partnership with the ADA to focus on the development of dentistry standards. The ADA became accredited as an ANSI-Accredited Standards Developer in March 2000, replacing ASC MD156. The ADA develops standards, technical specifications, and technical reports for the following:

- Nomenclature
- Dental materials
- Instruments
- Equipment
- Accessories used in dental practice
- Oral hygiene products (offered to the public or professionals)

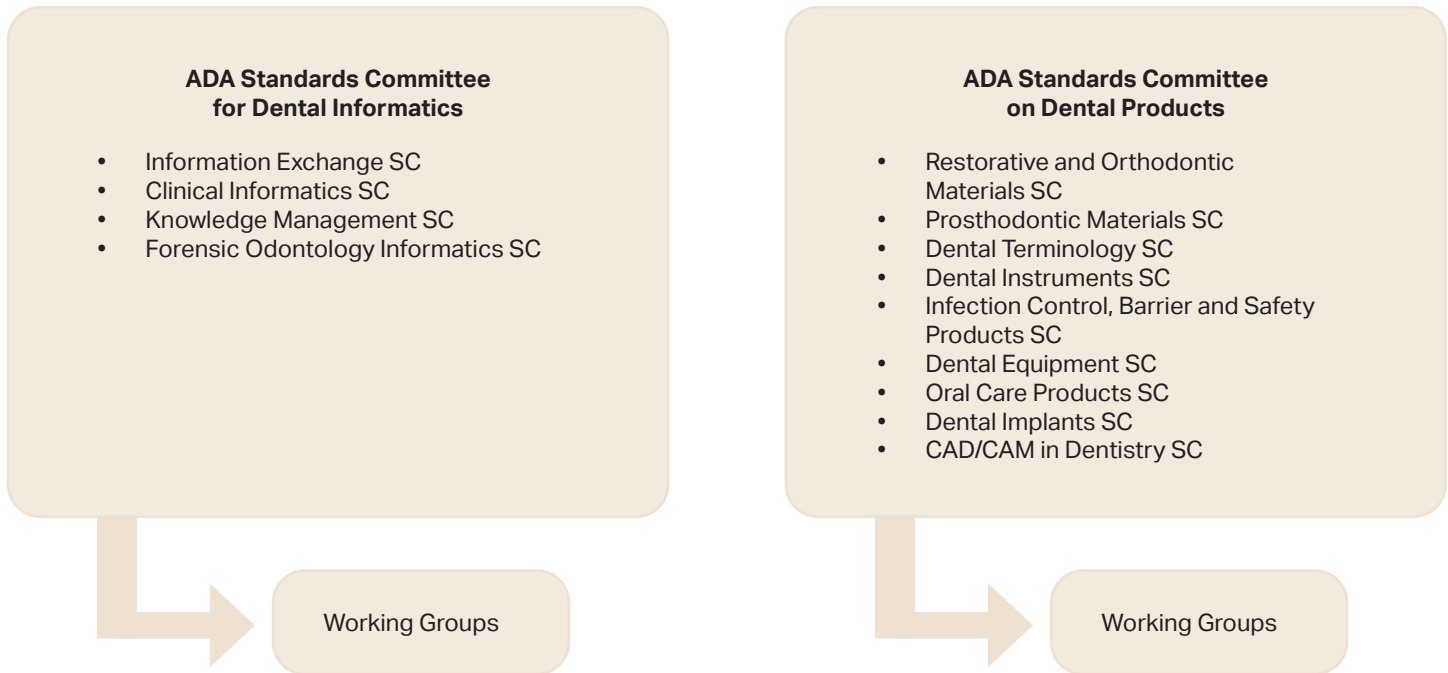
- Computer-aid design/computer-aid manufacturing (CAD/CAM)
- Implants
- Forensic odontology
- Infection prevention
- Electronic technologies (used in dental practice)

Structure

ADA has two standards consensus bodies: standards committee on dental products (SCDP) and standards committee for dental informatics (SCDI). The consensus bodies consist of volunteers and technical experts that serve as representatives of organizations affiliated with the profession, the dental industry, academia, and the government. There are also individual subject matter experts.

The ADA has published over 130 standards and technical reports with the help of more than 600 volunteers. Each consensus body has subcommittees that oversee working groups, which directly manage the development of standards. Participation in working groups is voluntary and technical experts from all backgrounds are encouraged to join. Voting membership requires an application, which will be reviewed by the working group Chair and accepted depending on availability.

See next page for organizational chart.



Standards Committee on Dental Products

The SCDP develops standards for tools used in dentistry.²⁶ The SCDP consensus body is composed of 34 voting and 1 liaison members. The SCDP consists of topic specific working groups, which fall under the following 9 general subject subcommittees:

- Restorative and orthodontic materials
- Prosthodontic materials
- Terminology
- Dental instruments
- Infection control
- Dental equipment
- Dental implants
- Oral hygiene products
- CAD/CAM

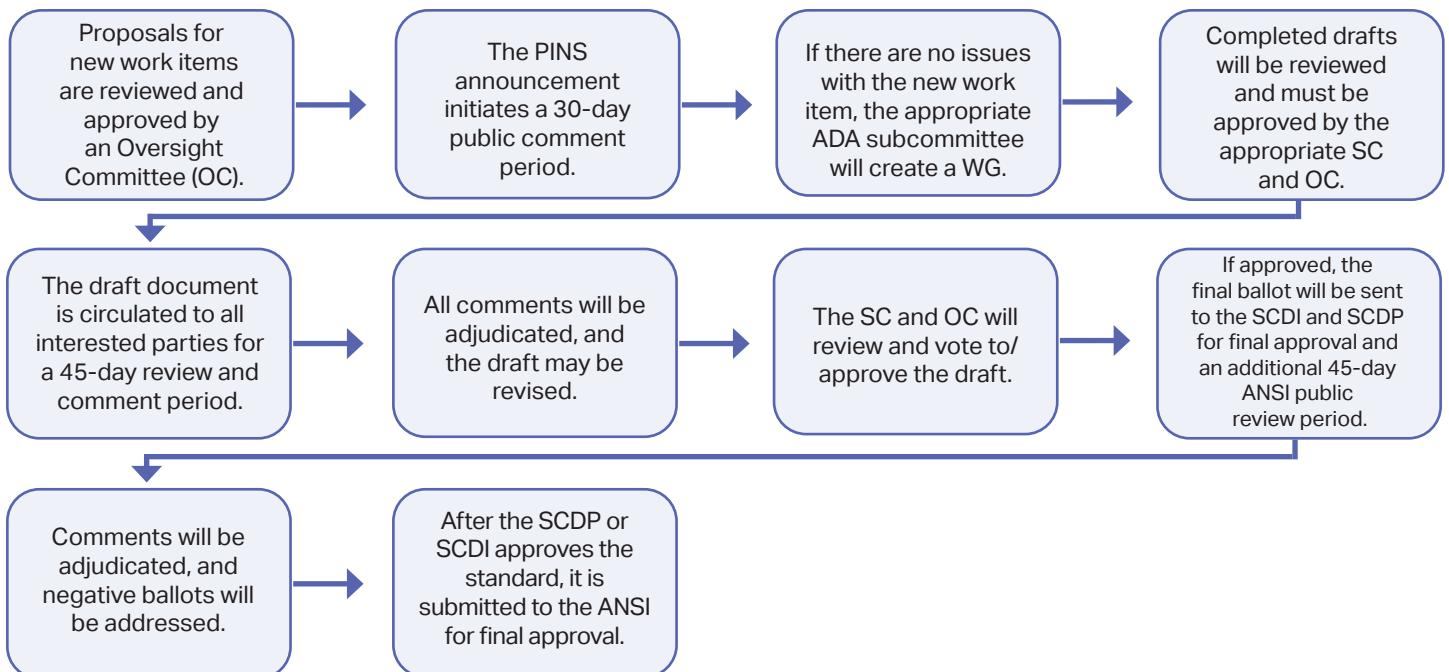
The subcommittees consist of over 300 volunteers who participate in working groups to

develop standards. The SCDP approves all candidate American National Standards on dental tools.

Standards Committee for Dental Informatics

The SCDI develops standards and technical reports to aid the dental profession with digital photography, computer software and hardware selection, data security, and more.²⁷ The committee has over 400 volunteers. The SCDI’s consensus group has 42 voting members. Members of the consensus group review and vote on every SCDI standard. The standard development process is managed by the topic specific working groups, which are under 4 general subject subcommittees: information exchange, clinical informatics, knowledge management, and forensic odontology informatics. The forensic odontology subcommittee develops standards “for the integration of clinical dental data to aid in the practice of forensic odontology.”²⁸

Document Approval and Public Comment Process



Consideration is given to proposals made for developing new standards and revising or withdrawing existing American National Standards. Requests can be submitted to the ADA Director of Standards, Center for Informatics and Standards. The requests are forwarded to the appropriate Oversight Committee (OC) for approval. After a request is approved, a PINS form must be submitted to ANSI for new or revised standards. The PINS announcement will be published in ANSI Standards Action, initiating a 30-day public comment period for stakeholders to flag possible conflicts with and duplications of American National Standards. There is a deliberation period when a comment regarding possible conflict or duplication is received. If no comments are received, the appropriate ADA subcommittee will create a working group to lead the drafting process.

Completed drafts will be reviewed by the appropriate subcommittee. After a draft is approved by the subcommittee, it is forwarded to an OC for review prior to circulation to all interested parties (AIP). Once the OC approves the item, the Secretary will circulate the draft document to all interested parties for a 45-day period review and comment period. An additional 45-day review period is available upon request. An announcement of the availability of the draft for review and comment is published in the ADA News and ANSI Standard Action.

If no comments are received during the AIP review period, the document is submitted to the SCDP or SCDI for final approval. If comments are received during the AIP review period, the WG must consider and respond to all comments received. The draft document may be revised based on the feedback. The document must be reviewed and approved at multiple levels. A majority approval from the working group must be obtained to move it to subcommittee. The subcommittee will review the draft and vote to send it to the OC. Once approved by the OC, the document will be submitted for final ballot to the SCDI and SCDP for final approval.

Concurrently with the final ballot, the BSR-8 is submitted to ANSI, initiating a 45-day ANSI-public review period. The notice will be published in Standards Action to announce the public comment period. Consideration will be given to the expressed views and objections of all participants, including those commenting on the listing (if applicable) in Standards Action. If the ballot

receives any negative votes, an effort to resolve all expressed objections will be made by the WG. Negative voters will be advised of the disposition of the objection in writing and the reasons therefore. All negative votes and unresolved objections, along with attempts at resolution, will be reported to the consensus body members. Members will have an opportunity to respond, reaffirm, or make changes within two weeks.

When the SCDP or SCDI has approved a standard, it is next submitted to the ANSI with a BSR-9 form for final approval. If accepted by ANSI, the standard becomes an American National Standard (ANSI/ADA Standard).

Appeals

Individuals that have directly and materially affected interests and have been or may be adversely affected by a procedural action or inaction of the consensus body or the Secretariat will have the right to appeal. Procedural complaints include whether a technical issue was afforded due process.

Format for Comment Submission

The draft document will be available for download from the association's website, ADA.org. The comment template will be posted along with the draft. The template should be completed in its entirety and returned via email to standards@ada.org. The template requires information such as the identification of the section of issue, the proposed change, and reasoning for that change.

Audio Engineering Society

Objective

The [Audio Engineering Society \(AES\)](#) is the only professional society that's exclusively dedicated to audio technology.²⁹ The international Society was founded in the United States in 1948 and unites audio engineers, artists, scientists, and students interested in advanced audio technology research and knowledge. The Society is a leader in industrial standards and technical recommendation development pertaining to digital and analog engineering, communication devices, and more. AES currently has seven committees, which includes the following:

- Technical Council
- Standards
- Education
- Historical
- Awards
- Nominations

- Executive (Board of Governors)

The AES Standards Committee (AESSC) leads the AES Standards Program by developing and publishing technical standards, information documents, and technical reports. In terms of forensic science, they've developed standards for audio forensic purposes that cover speaker recognition, managing recorded audio materials, and authenticating analog audio tape recordings.

Structure



AES Standards Committee

The AESSC administers the AES standard development and dissemination efforts. They are responsible for suggesting standard-based policy and actions, approving proposed standards, pro-

moting AES standardization procedures, managing the Society's Standards Secretariat, and being AES's liaison for national and international standards organization.³⁰ The committee officers consist of the Chair, Vice-Chair, three members-at-large, and the Secretary, who acts as the Standards Manager/Secretariat. Membership includes the officers, one representative from each AESSC SC and working group, the Chair of the AES Technical Council, one representative from the AES Technical Committees, the Treasurer of AES, a Standard Organization liaison, and the Chair or Secretary of any International Electrotechnical Commission (IEC) Technical Committee. The AESSC meets at least once a year. A quorum consists of the majority of voting members. The AESSC meetings follow *Robert's Rule of Order*.³¹

Steering Committee

The Steering Committee coordinates the AESSC and SCs to the larger Society. They are responsible for approving Chairs and Vice-Chairs of SCs and WGs, authorizing AES representatives to act as the liaison for all standards committees that AES is associated with, establishing and maintaining standard activity plans, setting and publishing standards activity rules, developing recommendations to AESSC on standards work, and more. Membership comprises the AESSC officers, AES treasurer, and the Chair of the AES Technical Council.

Subcommittees

SCs are responsible for the activities of their respective WGs.³² SCs are established by the AESSC. They oversee electing SC officers and creating administrative bodies (i.e., WGs and task groups). There are currently 5 SCs and one group composed of representatives from the Technical Committees. The 5 SCs are as follows:

- Subcommittee on Stabilized Documents
 - Subcommittee on Digital Audio
 - Subcommittee on Archiving and Restoration
-

- Subcommittee on Acoustics
- Subcommittee on Interconnections

The SC on Archiving and Restoration manages the Working Group on Forensic Audio. Subcommittees are required to meet at all AES conventions, and they must follow consensus requirements. All decisions must be made by consensus; therefore, a majority does not rule if the minority has a valid objection. All parties must come to an agreement.

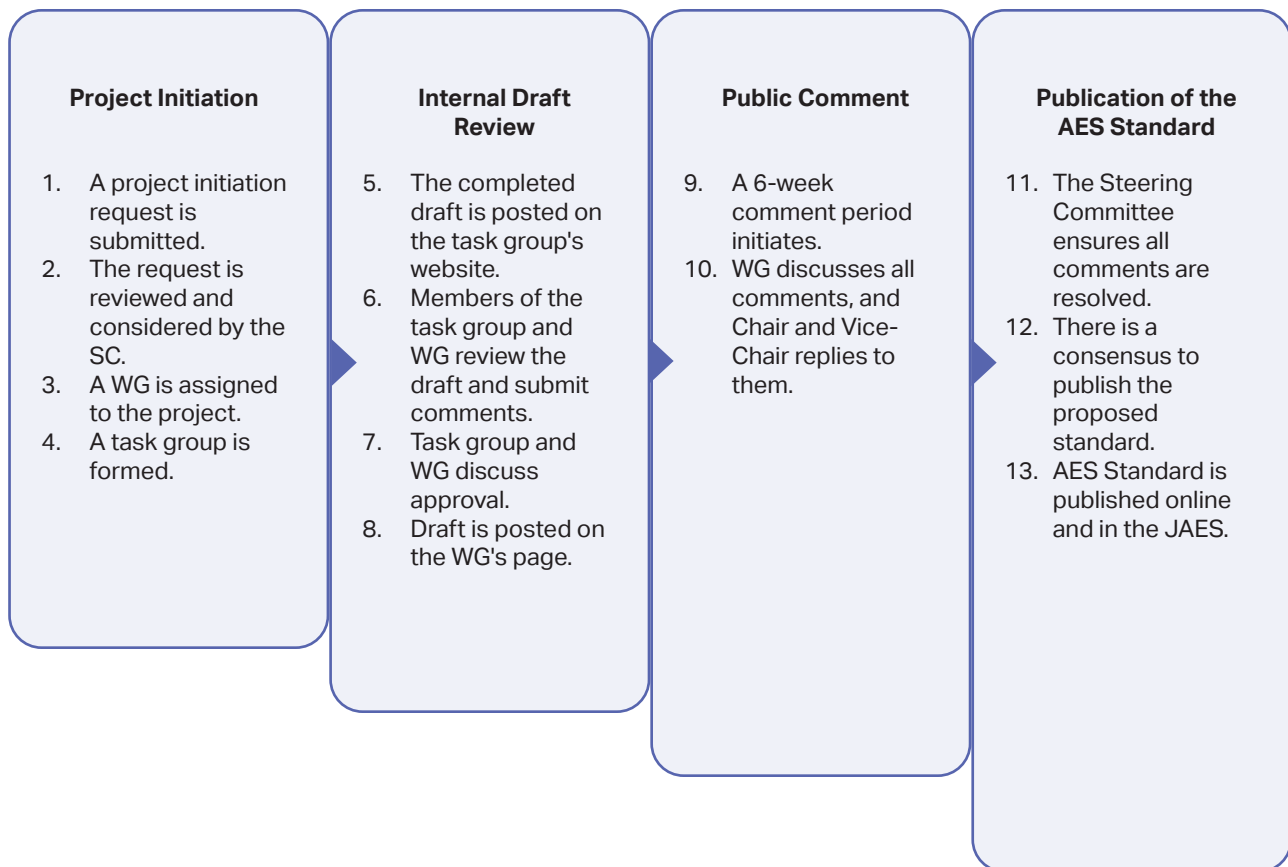
Working Groups

WGs may be formed at the request of the SCs with the approval of the AESSC.³³ Autonomous WGs that operate directly under the AESSC, i.e. separate for a specific SC, can be established by the AESSC. The Chair of the working group is elected by the AESSC and is responsible for the implementation of AES rules and regulations.

WG membership is open to individuals who have a material and direct interest in documents that are under the scope of the working group. The group does not allow organizational representation; however, a member of a particular organization can join as an individual. Membership interest categories are producer, user, academic, and regulatory interest. Membership also includes liaisons for other AESSC WGs. A WG member does not have to be a member of AES. Members must meet at least once a year at the AES convention. WGs must adhere to the consensus requirement. Voting is avoided in WG meetings. Instead, the Chair polls individual members about their opinion. Approval of an action or decision is met when there is general consent without objection. If the objection is sustained, the action is forwarded to the SC. However, the reason for overriding an objection must be clearly stated.

WGs can be established as study groups that do not write standards. A WG can also set up subgroups to work on individual AESSC projects. Task groups can be established under a WG or subgroup. They are in charge of the research and writing work. Task groups do not have to follow consensus requirements.

Document Approval and Public Comment Process



Project Initiation

A WG, the AES Technical Council, or any member of the public can request the AES to take on a standards project. The request can be made by submitting an online project initiation form, found at <http://www.aes.org/standards/development/project-initiation.cfm>. Once submitted, the request will be considered by the appropriate SC. The SC will then assign a WG to take on the project. The WG can decide to accept the project or incorporate it into an existing project. The WG will designate a task group to lead the drafting process.

Internal Draft Review

Once a draft is completed, the task group will post it on its private (members-only) document website. Members of the task group and WG will review the draft and will submit their feedback. A member may submit an alternative draft. When the task group is content with the proposed draft, they can progress the document to the WG. The Chair of the WG will request for any objections. When the WG is satisfied with the draft, they advance it to the Secretariat to be properly formatted. The Secretariat will then post the draft on the WG site and initiate a “proposed call for comment.”³⁴ At this stage, requested revisions are handled by the Secretariat.

Public Comment

After the WG approves the formatted draft, the parent SC proposes a call for public comment to the AESSC, via the Secretariat. Once the SC confirms that the consensus requirement was met, the Secretariat will post the document on the Call for Comment page of the AES website and publish a notice in the Journal of the Audio Engineering Society (JAES), after the Steering Committee concurs. WG members can submit their comments by email during WG meetings. The WG will discuss all comments and the Chair and Vice-Chair will reply to all of them. Drafts are open for public review and comments for six weeks from the date of the notice publication.³⁵

Type of Documents

AES produces various types of documents to accompany a published AES standard. The classes of documents include information document, trial-use standard, and standard project reports.³⁶ Information documents contain a summary of scientific and technical information that justifies or aids in the comprehension and implementation of a particular AES standard. Trial-use standards provide a chance for discussion and trial use before a standard is published for public comments. A standard project report is a document that provides proof of a consensus for a given standard.

Standards developed by AES have been created by a full consensus of all participating individuals that have a material and direct interest. There are six standard categories:

- Practice/recommended practice
- Test method
- Specification
- Guide/guideline
- Classification
- Terminology

Practices/recommended practices list a set of recommendations and/or requirements for any action that does not produce a test result. Test methods contain a list of recommendations and/or requirements for actions that produce a test result. Specifications highlight a set of recommendations and/or requirements to be satisfied for a given device or action. Guide/guidelines list recommendations and/or requirements that provide suggestions and information to consider when complying with a practice, test method, or specification. Classifications provide a property-based hierarchical arrangement of items. Lastly, terminology documents contain a set of definitions, abbreviations, and symbols.

Format for Public Comment

According to AES, a “comment” is a formal objection.³⁴ A comment must address specific issues and suggest alternative wording or a resolution. All comments will be publicly available and can be sent to the AESSC Secretariat at standards@aes.org or mailed to the address listed on the posting. However, email is the preferred method.

How to Craft an Effective Comment

Standard developers that are accredited by ANSI must subject their standards to ANSI's public notice and comment requirements, if they are publishing an ANS.³⁷ This requirement was implemented to permit individuals who may be directly or materially affected by the proposed standards to have a voice. Even though OSAC is not an SDO, their standard developing process also includes public comment periods. Experts and stakeholders are encouraged to provide input and feedback on sections of the document they found erroneous, problematic, incomplete, etc. In addition to the critiques, the commenters are asked to provide possible resolutions. Once the comment period is over, all public feedback will be adjudicated. The adjudication process can be long, laborious, and stress-inducing. Comments can be rejected if the adjudicators conclude that the comment is ineffective, irrelevant, inaccurate, or unconvincing. In this section of the handbook, we provide a list of things to consider when writing a comment, especially an effective one.

Review the SDO's Process and Policies

The first section of this handbook discusses how standards are developed, adjudicated, formatted, and published. Before commenting on a drafted standard, make sure you understand the development process and use the required format. Understanding the drafting process and keeping track

of the drafts is key. Most organizations will explicitly state whether the draft is being recirculated and/or the ballot number. Some organizations do not accept comments on sections of recirculated drafts that did not undergo any revisions. Commenting on sections that have not been revised may result in an automatic rejection. Drafts are often edited using track changes and the redlines, which indicate the changes made, are published. Review the redline version of the draft to know which parts of the document have been revised. Furthermore, some comments may be rejected simply because the commenter did not use the proper forms or templates. Read the first half of this handbook to understand the comment submission format for each organization and utilize that format when submitting feedback.

It's important to understand the difference between a standard and a guideline or best practice recommendation. Standards state specific methods, actions, procedures, or processes that must be followed. Standards use "shall," which indicates a requirement. Guidelines and BPRs do not use "shall" because all the methods, actions, procedures, or processes that are stated are suggestions that can be considered in the absence of a standard. Guidelines and BPRs use "should." Some SDOs classify all their documents as "standards," so guidelines can be confused for standards. For example, ASTM has "standard guides," which contain a list of suggestions and recommendations. For a BPR or guideline document, any comments stating that a recommendation or suggestion must be changed, within the document, to a requirement will not be accepted. Also, be careful when using terminology such as "may," "can," or "will." For some organizations, "may" is used when permission is granted or to indicate that something is optional, "can" indicates a possibility, and "will" is used to express futurity.^{11,38}

Try to Understand the Document From a Holistic POV

Your voice and perspective are very valuable because you may provide a perspective, suggestion, or information that hasn't been considered or has been overlooked. However, when writing a comment, try to understand the document from a holistic point of view. Meaning, don't just review the words in the document, but also think about the intended audience, those that have been involved in the drafting

process, and everyone that will be impacted. Forensic standards, guidelines, and BPRs are intended for use by forensic analysts or individuals working in a forensic laboratory or related settings. Consider the practicality of your comments, which is directly related to implementation (i.e., as practicality decreases, implementation decreases). Some laboratories may not have proper resources, manpower, or funding to implement certain suggestions. For example, a comment, in response to a standard stating that re-examinations must be required for all samples may be rejected because it's not practical.

There are many individuals involved in the drafting process. Generally, most organizations aim to have a full representation of relevant stakeholders and experts in a committee or working group. Be cognizant of the individuals involved in this process and know that these are consensus documents. Documents will be criticized from multiple perspectives and these criticisms may conflict. Working groups or committees will work to find a balance.

Tone Is Very Important

Tone in writing refers to the writer's voice and how it is perceived by the reader. Your tone may devalue or support your message. Most individuals that are drafting these documents and adjudicating comments are volunteers that want to improve the field. Their ideas for improvement may be very different from yours, but that does not validate harsh comments. Even when expressing strong opposition, you can provide valid and vigorous comments without resorting to a harsh tone. Craft comments that are compelling and convincing by basing them on facts, rather than opinions or emotions.

Stay Within the Scope of the Document

The scope of a forensic standard, guideline, or BPR is usually stated in the beginning of the document. Some documents will specifically state the topics that are beyond its scope. Read the scope of the document carefully. Avoid providing comments that are beyond the scope of the document. For example, if a document states that QA/QC is beyond its scope, do not write a comment that relates to quality assurance. If the document is a standard guide for dealing with contamination, do

not write a comment about degradation because it may not be within its scope. Feedback about topics, areas, or issues that are outside the scope of the document will be viewed as irrelevant. Understand that there are different documents that cover the same topic but are limited to a specific aspect of that topic (e.g., documentation, expert testimony, technical review, QA/QC, etc.). Your comment may be well-suited or more relevant for another document.

Refrain From Comments That Are Too Broad or Too Specific

Comments should not be too broad or too specific. Broad comments leave too much room for interpretation and are difficult to adjudicate. Comments that are too specific may not be practical for all labs. Formulate comments that are not too narrow or broad minded. Find a balance by crafting comments that are direct and specific but practical. Withstand asking for language for all possible situations. The field is ever-changing and that may not be possible. Additionally, try to stay away from general comments, unless it's necessary. General comments are ones that pertain to the entire document. Identify the specific section or sections that are most relevant to the comment.

Avoid Providing Comments That Conflict With Existing Published Standards

The scope of some documents is narrow to prevent possible duplication and conflict. Before a proposed standard becomes an ANS or gets added to the OSAC Registry, it will be assessed to determine if it conflicts with any existing ANS or OSAC standards. If your feedback suggests or recommends something that may conflict with an existing standard or promotes inconsistency between standards, your comment will be rejected. To avoid this, find and review published standards that are focused on the same topic(s) before submitting comments. SDOs review and renew published standards every three to five years. If you were not involved in the initial development of the standard and you believe that it's incomplete or has issues, reach out to the organization that published the standard or wait for the renewal process.

Support Claims With Scientific Literature

When appropriate, references can elevate your comments. Use literature that is based on sound scientific research when making an assertion. However, provide a maximum of one or two reference(s) to support your claim. Additionally, avoid commenting about research that isn't applicable to the forensic field. If the relevance of a particular reference isn't clear, briefly explain how it may be applicable in a sentence or two.

Make Sure Comments Are Substantive

When commenting, do not solely state whether you disagree or agree with a particular section of the document. Comments such as "I don't like this" or "I agree" are non-substantive. Clearly state the language and section that you are referring to and explain specifically why you disagree, why the language is problematic, or what else needs to be considered. Make sure to always provide an explanation for why you are suggesting a change. Do not solely provide criticism. Provide resolutions and/or language to fix the issue. Also, ensure that your suggested correction or resolution truly resolves the issue.

Communicate With the Technical Contact or SDO

If your comment needs further explanation or clarification, a member of the organization or the technical contact listed in the document may reach out to you via email or phone. They are reaching out to ensure that your comment is properly addressed and to provide opportunity for further discussion or justification. Provide an email or phone number that can be used to directly contact you. Find time to respond to the email or phone call. Additionally, before you submit your comments, you can reach out to the Chair of the working group, the head of the subcommittee, or the technical contact if you have any questions or concerns that can be easily addressed. However, if that conversation does not alleviate your concerns or answer your questions, submit your comments.

Read the Entire Document Before Finalizing Your Comments

Before submitting your comments, thoroughly review the entire document. Questions and concerns may emerge when you read one part of the document, but those questions may be answered in a later part. Verify that the comment you write isn't addressed in another section of the document. This can be achieved by reading the document before and after you've written your comments. Some individuals like to write comments as they read the document, in those cases, a second read is essential. Comments that express concerns about or suggest things that are already discussed in a different section of the document may be rejected.

Avoid Lengthy and Unclear Comments

Keep your comments concise and to the point. Clearly state your suggestions, rationale, and proposed solutions. Avoid using direct quotations and multiple references that support the same claim because this can make your comment unnecessarily long and your message may become muddled. Comments that are confusing or unclear prolong the adjudication process and/or may be misinterpreted. Provide comments that are clear and do not require interpretation.

Do Not Reference Prior Comments

Comments are often rearranged. All comments that you submit for a particular document may be separated. Therefore, do not cross-reference. Comments that include language such as "see the above comment" can lose their meaning when disaggregated, especially when that language is for a rationale or resolution.

Understand the Limitations of the Document

OSAC and forensic SDOs create consensus documents that can be implemented by a forensic laboratory or expert. Resist using the open comment period of a draft to push personal or political

agendas. Do not provide feedback that recommends the use of a particular brand, instrument, or assay. Also, avoid proposing the use of a new method that isn't currently used in casework, unless you can properly justify the suggestion.

Attend Meetings

Some organizations, like ASB, permit observers to attend their general meetings. If you are a visual learner, attending a meeting will help you understand how the group operates. You can personally witness how comments are adjudicated and voted upon. If becoming a volunteer is of interest to you, attending a consensus group or committee meeting is a good way to determine what that environment is like and whether it's one that you can thrive in. To attend a meeting, contact the leaders or officers of your targeted group to determine the time and location of the next meeting.

Providing Comments on Topics That Are Outside Your Area of Expertise

It may be difficult to produce effective comments if the discipline or technique is outside of your field of expertise. Standards are meant to be utilized by practicing analysts and may not be fully comprehensible to those that have little to no experience in the field or with the technique. Knowledge gaps can be closed by properly researching the discipline and specific technique. Individuals that do not have a background in the specific forensic science discipline can still provide valuable comments that improve documents. Legal, human factors, and quality experts as well as statisticians and researchers may not be experts on the topic covered in a standard, but they can apply their extensive background knowledge from their area of expertise to the standard. This type of approach provides different perspectives that can result in new ways of thinking about new or even mature topics and lead to further improvements in the standard.

To be effective in this area, enhancing your rudimentary knowledge of the discipline with a particular focus on understanding the limitations of the discipline or technique will allow commenters to provide much more focused and implementable feedback. It should also be noted that some

disciplines have not established proper statistical methods that can account for the complexity and true accuracy of the process and some techniques are limited to specific sample types. In these types of cases, requesting the inclusion of a statement related to method limitations can be effective under the right circumstances.

Avoid Intentionally Repeated Comments

If you are new to the commenting process, you should consider taking a collaborative approach. Collaborate with other stakeholders and experts, especially those who have experience. Be prepared to work with those people during the adjudication process. Submit a single form that consists of the collaborative comments. Do not send multiple submissions of the same verbatim comments. Moreover, resist the urge of sending comments that have already been adjudicated. If you disagree with how your comment was handled, some organizations have an appeal process. Repeating the same comment will not trigger a change of mind.

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