The Committee Handbook

A Guide to

Effective Committee Participation

&

Document Development

HYDRAULIC INSTITUTE™

Committee Handbook

A Guide to Effective Committee Participation and Development of Documents

Revised and Approved January 2026

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1. Welcome to the HI Committee Handbook

Hello and welcome to Hydraulic Institute! We are excited to have you join our roster of technical and industry experts who volunteer their time and knowledge to the work we do.

The Hydraulic Institute (HI/ the Institute) centers the pump industry around excellence and efficiency to power everyday life. HI's mission is to advance the pump manufacturing industry by becoming the world's resource for pumping solutions and advancements in the industry. We achieve this by addressing pump systems, developing standards, expanding knowledge and resources, educating the marketplace, and advocating for the industry. One of the ways we realize this mission is through our publications.

The Committee Handbook (the Handbook) was written to guide anyone involved in the development of an HI publication. Prepared by HI staff, the Handbook was reviewed and approved by the sitting Vice-President of Technical Affairs, the Chair of the Standards Committee, and a workgroup of tenured volunteers to ensure quality and efficacy. This document is available online to ensure expectations are communicated and consistent between committees.

The Handbook is intended for committee leadership and HI Staff to use as a reference as needed throughout the development process. To that end, the Handbook provides an overview of HI structure followed by pertinent topics that frequently come up in committee discussions. Each section is numbered for ease of reference on a future date but please note that exhibits are located at the end of the document. Please see the table of contents for a detailed list of topics covered in the Handbook.

While HI Staff will periodically offer training on these processes, questions can be addressed immediately by emailing HITechnical@pumps.org.

We hope that this document aids in the orientation and navigation of HI committees and look forward to collaborating with you to better the pumping industry.

Hydraulic Institute Technical Affairs Staff

NOTE: The controlling document for the creation of ANSI/HI Standards is written, periodically updated, and approved as required by the American National Standards Institute (ANSI) to meet the ANSI Essential Requirements. Public documentation of those requirements is available on www.ansi.org. The applicable Hydraulic Institute Policy & Procedure document titled **Hydraulic Institute Policies and Procedures: Standards Development Operating Procedures (HI Policy)**, 2019 Revision is available to all members. There is intended to be no conflict between the Handbook and the HI Policy. If any conflict is found, its existence shall be brought to the attention of the VP of Technical Affairs and the HI Technical Director for resolution. The HI Policy document shall take precedence.

2. Types of Hydraulic Institute Members and Partners

Participation within HI is contingent on membership or partnership with the Institute. While most companies or end-users qualify for participation within the Institute, all applicants are privy to HI Board review and approval. Please note that membership or partnership is an annual fee and is **not managed** by the Technical Affairs team. Questions about membership dues and benefits can be sent to HITechnical@pumps.org and will be directed to the Manager of Membership.

Below is a list of Membership and Partnership types followed by a brief description.

- **Member:** Pump manufacturers that sell pumps into the North American market.
- **Associate Member:** Pump system integration technology developers and/or manufacturers of pump system components which sell into the North American market.
- **Standards Partner:** Engineering and consulting firms, municipalities, and end-users based in North America.
- **Industry Partner:** An end-user of pumps and/or retiree.
- **Training Partner:** Individuals and/or companies that do not qualify for membership types but want to consume training content.
- **Academic Partner:** Any individual who is employed by or attends a college or university and who wishes to contribute.
- **Media Partner:** Media partners typically collaborate with HI during conferences. They are not allowed to participate nor attend technical committee meetings.

When participating on HI committees you will see representatives from many membership/partnership types. Having this variety of expertise contributing to a document's development and review ensures that the publication is well-rounded.

3. Overview of Hydraulic Institute Technical Affairs Department and Committee

The Technical Affairs (TA) Department at HI oversees the publications (both new and existing) of the Institute in addition to any educational content that is being developed by HI's educational partner, Pump Systems Matter (PSM) and Hydraulic Institute University (HIU). HI staff within the TA Department includes the Technical Director and their team that work as project managers on specific publications. This section of the Handbook will not focus on the structure of HI's internal TA department but cover the governance structure of the Technical Affairs Steering Committee.

3.1 Role of Technical Affairs Steering Committee (TASC)

The Vice-President of the Technical Affairs (VPTA) chairs the Technical Affairs Steering Committee (TASC) and is a member of the HI Board of Directors (HI BOD). In this capacity, The VPTA receives direction from the BOD and can report to the BOD the needs of Technical Affairs and the progress within Technical Affairs.

The TASC supports the VPTA at the highest level so that the technical leader of HI can provide input and receive direction. Consequently, participation is by invitation of the VPTA, which generally includes Chairs of the Standards Committee, Section Chairs, and Industry Representatives. The TASC meets three times a year just before the beginning of an HI conference.

3.2 Overview of the Standards Committee and Group Leads

3.2.1 Role of the Standards Committee

The Standards Committee is responsible for the governance of committees within Technical Affairs, which produce the vast majority of publications within the Institute. The Standards Committee has the responsibility to prioritize the technical work of the Institute to manage compliance with ANSI renewal requirements and consistency with HI Strategic Plan Goals. See Table 5.2.1 Committee Roles and Responsibilities for more information. This includes but is not limited to considering new work item proposals, approving the formation of committees, and approving the chairs of technical committees or sections. The Standards Committee can guide technical committees and provide global policies as to how to handle items that apply to multiple committees and publications.

The Standards Committee has a chair and vice-chair and conducts itself in a manner consistent with the By-Laws of the Hydraulic Institute. Membership is open to Chairs and Vice-Chairs from all Sections and Technical Committees, but attendance and participation in Standards Committee meetings is open to all HI members and partners.

Although the Standards Committee has oversight responsibilities of HI publications it is important to note that it does not author standards or technical documents.

This committee meets at the conclusion of every HI conference. During this meeting, group and section chairs report on progress and timeline for publication, address questions from committees, announce leadership changes in committees as needed, and propose new topics for consideration and a vote. HI staff will report on the progress of committees/section if the appropriate group/section/committee leadership is not present.

3.2.2 Role of Group and Section Leads

There are five groups within the Standards Committee. Some groups are broken down into sections due to the quantity of publications of that specific type/topic.

- Associate Member Council Group
  - Couplings
  - Drivers & Controls
  - Housing & Seals
- General Standards Section
  - HI Definitions
  - Engineering Data Library

- o Pumps-General Guidelines
- Positive Displacement Group
  - o Air-Operated
  - o Controlled-Volume Metering Section
  - o Reciprocating Section
  - o Rotary Section
- Rotodynamic Group
  - o Application Specific Section
  - o Design & Operation Section
  - o Performance Section
  - o Testing Section
- Systems Section
  - o HI Case Studies
  - o HI Waterhammer
  - o Pump Application Guideline Guidebooks (tyopics vary)

Each of the sections has a Chair and Vice-Chair whose primary responsibility is to monitor the progress of committees that fall within the section, organize the activities of the section, and provide leadership and assistance to the committee chairs to establish and meet targets within the required timeframe. The Section Chairs (with the aid of TA Staff or membership attendees) report committee progress to the Standards Committee and review new work item proposals that fall within their section prior to presentation to the Standards Committee.

3.2.3 New Work Item Proposal (NWIP)

A new standard, guideline, white paper, or other publications can be requested by any HI Section, Committee, Approved Standards Committee working group/task force, or General HI member. The NWIP form will need to be filled out as completely as possible and sent to HITechnical@pumps.org for the Director of Technical Affairs (HI Staff) and Section Chair for review. The Section Chair and DTA will review the NWIP form for completeness and agree the request is valid. If the NWIP request is valid, it will then be reviewed by the Standards Committee at the upcoming HI Conference and voted on. Should a NWIP be approved to begin work, HI staff will be assigned to begin project management. The committee will most likely begin work at the next in-person conference. See section 4.2 Lifecycle and Production Timelines of ANSI/HI and HI Publications for more details.

Please see **Exhibit 1** for an example of a New Work Item Proposal Form.

3.3 Technical Affairs Organizational Chart

The Technical Affairs Organizational Chart in **Exhibit 2** is updated prior to and after each HI Conference. The chart legend highlights the steering committees, active and inactive committees, the committees that are seeking members, and committees that are currently working on educational development.

4. General Information of the Publications of the Hydraulic Institute

4.1 Types of Publications of the Hydraulic Institute

Most of HI's publications are approved by the American National Standards Institute (ANSI) while others are approved by HI alone (but follow very similar processes). The approval type (ANSI/HI or HI) of a publication will determine the language used, ballots conducted, and timeline for the review of a document.

Please see the table in section 4.3 for specifics on each publication type.

4.2 Lifecycle and Production Timelines of ANSI/HI and HI Publications

After a document has been published, the committee becomes inactive, and the document enters a monitoring timeline. The monitoring timeline is determined by the approval type of a publication. ANSI/HI Standards must meet a five-year revision or reaffirmation schedule whereas HI publications meet a ten-year revision or reaffirmation schedule.

To determine what path to take (e.g. revision or reaffirmation) it is best practice for the current section chair and recent committee chair, if available, to review the document and make a recommended action to the standards committee. For a ten-year review, a committee will be formed (ideally with past members from the most recent publication) to review the document and provide a recommended path forward to the Standards Committee.

A New Work Item Proposal (NWIP) to the Standards Committee can be submitted at any time but will be reviewed by the Standards Committee for approval.

Please see Table 4.2.1 below for more information on lifecycle actions and section 4.3 for specifics on each publication type.

Table 4.2.1: Publication Lifecycle Actions

Action	Description	Type of Work
New Publication (**Exhibit 1**)	Creation of outline and document writing per the approved purpose and scope.	Balloting process and disposition of comments.
Addenda or Errata	See section 4.2.1	Minor edits made within the 5- or 10-year cycle timeline before a formal review has been launched by the Standards Committee.

Revision of Existing Publication	Any substantive change made to the document	Additions, deletions, updated references, or updated tables per HI formatting guidelines and Nomenclature standards
Reaffirmation of Publication	Does not require any major changes.	Reaffirmed and published with the non-substantive changes. Review standard outline numbering, equation formatting, graphics and terminology per appropriate nomenclature standard. Encompasses minor corrections and editorial updates. Updated cover and foreword to indicate reaffirmed year and committee. Reaffirmation may occur a maximum of two consecutive times.
Withdrawal of Publication	The publication is not relevant or requires substantive updates, but the Standards Committee determines they cannot be supported by membership in a timely manner.	For ANSI approved documents, HI Staff works ANSI to withdraw the document from register. For HI approved documents, HI Staff removes from circulation.

4.2.1 Production Timelines
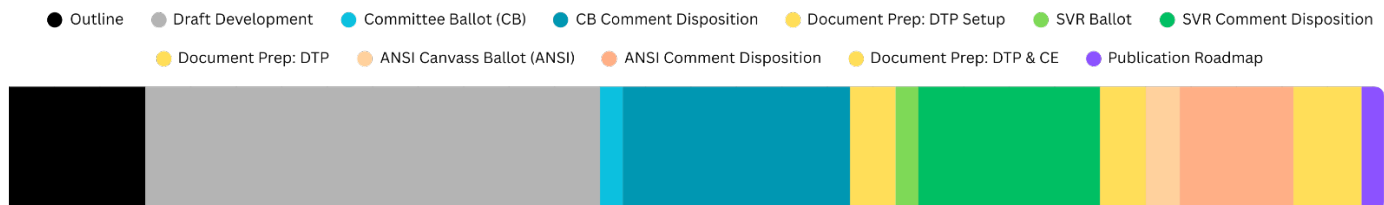
The production timelines differ from the monitoring timelines. Whereas monitoring timelines manage a document *after* publication and help determine the appropriate Publication Lifecycle Action (as seen in Table 4.2.1), the production timeline is a project management tool when a publication needs to be worked on by a committee.

The production timelines detailed below were designed to guide a committee's work by outlining the duration of tasks in months and listing milestones to be completed. The selection of a production

timeline will depend on the type of action for a publication. Typical production timelines are listed beneath each publication life cycle action type.

To assist with the Project Management of a committee, Ghantt charts have been created to complement the production timelines. Committee leadership should request the appropriate Ghantt chart from their HI staff prior to the launch of a committee to ensure that the deliverables are set accordingly.

NOTE ON ADDITIONAL BALLOTS: The production timelines below do not include any recirculation ballot(s) or re-ballot(s) that may be required during the production process. Should a recirculation ballot(s) and/or re-ballot(s) need to be launched, HI staff will inform committee leadership of the impact that the ballot will have on the deliverable date. Recirculation ballots range from 14-30 calendar days depending on the quantity or substance of edits. Re-balloting typically ranges 30-45 calendar days.

NOTE ON PRE-COMMITTEE WORK: Following the Standards Committee approval, the committee chair and HI staff may elect to do some preliminary work prior to the start of a production timeline. HI staff and committee chair will either 1) review existing publications for edits or 2) begin drafting an outline for review. This process typically takes 3 months (or the time between in-person conferences) and is not included in the production timelines listed below.

NOTE ON "DOCUMENT PREP" BLOCKS: In 2025, the Section Leadership Group requested that HI staff include the desktop publishing and copy editing in the production timelines. As a result, the "document prep" block was added to the graphic and timeline.

1. Following the completion of comment dispositioning of the Committee Ballot, HI staff will submit the document to the desktop publisher to layout the document. After this point, comments must be made in marked-up PDF files and not in a Word document with track changes (unless a new section is added entirely).
2. Following the final ballot of a document, HI staff will submit a marked-up PDF file, updated images, new sections (and other edits) to the desktop publisher. After the implementation of these edits, the document will go for copy editing. During this time, the committee leadership is often asked to review the committee roster for award recipients, draft language for the foreword (guidebooks only), and fill out marketing material that addresses changes/highlights of the publication.

NOTE ON PUBLICATION ROADMAP: The last step in each production timeline is the publication roadmap. This process typically takes one month. At the end of the publication roadmap, the publication is available for purchase on pumps.org, has been added to the subscription site, and sent over to approved resellers. HI staff is responsible for cover art creation and website product set-up. This process typically ranges from 1.5 months (white papers/reaffirmations) to 4 months (major revision or new publications) and is not included within the production timelines listed below.

4.2.1.1 Actions within Production Timelines

Action	Description of Task	Detailed Description Found:
Outline ●	Drafting/reviewing an outline of content with the committee. Existing standards will need to be reviewed to align with boilerplate numbering/formatting/ templates as needed.	Section 7.3.2 (Standard HI Numbering)
Draft Development ●	The time when content of a publication is being edited/ written/ revised as needed.	5. Hydraulic Institute Committees: Structure and Participation
Committee Ballot ●	Typical duration for ballot of 30 days.	Section 7.2.3 (Committee Ballot)
Committee Ballot Comment Disposition ●	*Does not include* re-circulation ballots for negative ballot comment resolution and/or major revision from a comment.	
Document Prep: DTP Setup ●	This is the first time the desktop publisher will receive the document and lay it out per the HI style guide. This typically happens after the committee ballot in preparation for the SVR/ANSI Canvass ballots.	Section 7.4.1 What happens to prepare a document for publication?
SVR/ANSI Ballot ● ●	Typical duration for ballot of 45 days. This is shown as a green dot when combined SVR/ANSI ballot. When the ballots are separated out, the SVR will be green and the ANSI will be oranges.	Section 7.2.4 (SVR Ballot), 7.2.5 (ANSI Canvass Ballot)
SVR/ANSI Ballot Comment Disposition ● ●	*Does not include* re-circulation ballots for negative ballot comment resolution and/or major revision from a comment.	
Peer Review	For Guidebooks Only. Typically conducted by those outside of the Institute's membership body. Can be conducted at	Section 7.2.6 Peer Review

	the same time as an SVR or be a separate ballot. The decision is up to the committee leadership.	
Document Prep: DTP & CE 🟡	All comment dispositions need to be implemented by the desktop publisher. "CE" refers to copy editing, a process by which HI staff submit the cleaned document to a vendor for grammatical review (per HI Style Guide and Chicago Manual). These edits will also need to be implemented by the desktop publisher.	Section 7.4.1 What happens to prepare a document for publication?
Publication Roadmap 🟣	This process maps out what needs to be done to take a final file from the desktop publisher to a purchase page on pumps.org/ access on the subscription site.	N/A

4.2.1.2 The 15 Month Production Timeline
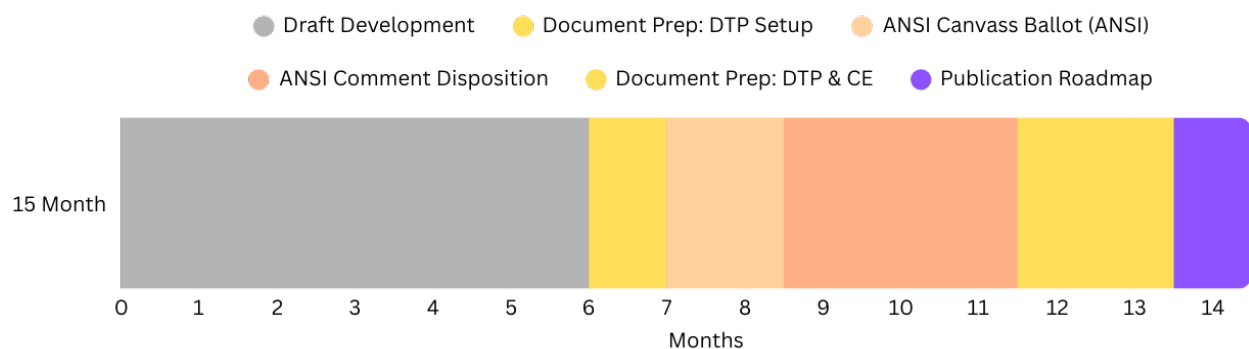
Typical Publication Action: Reaffirmation

Reaffirmations do not have all possible steps within the production timeline because the ANSI requirements for this action are minimal. As a result, this process is typically a quick turnaround from Standards Committee approval to final publication. Steps included in this publication process are:

- **Draft Development – 6 Months:** Committee reviews the proposed editorial changes (graphics, tables, formatting) from the chair and will add as needed. If the committee decides to adjust the production timeline from reaffirmation to revision, HI Staff will need to submit a revised PINs to ANSI and a new production timeline will need to be adopted for project management.
- **Document Prep – 1 Month:** The document is sent to the desktop publisher (DTP) to be laid out per the HI Style Guide.
- **ANSI Ballot – 1.5 Months:** Both ballots will need to be conducted simultaneously to abide by the 12-month timeframe.
- **ANSI Comment Disposition – 3 Months**
- **Document Prep: DTP & CE – 2 Months:** The document (and related images/graphics/additional content) is sent to the desktop publisher to implement comment disposition edits and then to the copy editor (CE). Committee leadership is invited to review the implemented document before final files are requested.
- **Publication Roadmap – 1 Month:** Final files are requested and HI staff launch the Publication Roadmap. This roadmap results in the document being available to publish/access via subscription.

NOTE: For Reaffirmations, only ANSI ballot is required, and the SVR ballot is not required.

4.2.1.3 The 30 Month Production Timeline
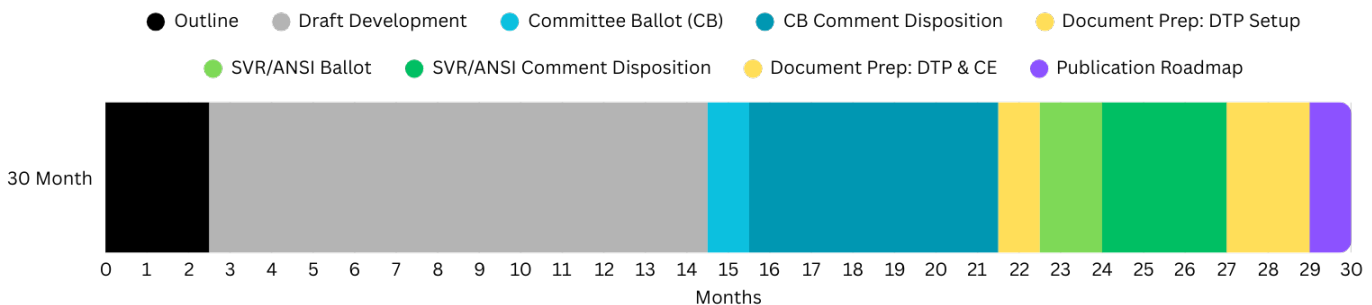
Typical Publication Action: White Paper or Minor Revision

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The 30 Month Production Timeline is best suited for smaller new publications (White Paper) and for those publications that will have a minor revision (example: aligning definitions and equations within a testing standard to the corresponding pump nomenclature standard). Steps included in this publication process are:

- **Outline – 2.5 Months:** Taking Chair's review and HI formatting into consideration, committee works to revise (or create in the case of a White Paper), an outline. Sub-sections can be created by individuals for review at committee meetings.
- **Draft Development – 12 Months**: Assign sections of outline as needed for content revision/creation. Use workgroups if needed.
- **Committee Ballot – 1 Month**
- **Committee Ballot Comment Disposition – 6 Months**
- **Document Prep – 1 Month:** The document is sent to the desktop publisher (DTP) to be laid out per the HI Style Guide.
- **SVR/ANSI Ballots – 1.5 Months:** Both ballots will need to be conducted simultaneously to hasten review. As the duration of these ballots differs (SVR is 30 days and ANSI 45), HI Staff will compile results as they arrive and conduct additional outreach for balanced responses as needed.
- **SVR/ANSI Comment Disposition – 3 Months**
- **Document Prep – DTP & CE – 2 Months:** The document (and related images/graphics/additional content) is sent to the desktop publisher to implement comment disposition edits and then to the copy editor (CE). Committee leadership is invited to review the implemented document before final files are requested.
- **Publication Roadmap – 1 Month:** Final files are requested and HI staff launch the Publication Roadmap. This roadmap results in the document being available to publish/access via subscription.

4.2.1.4 The 42 Month Production Timeline
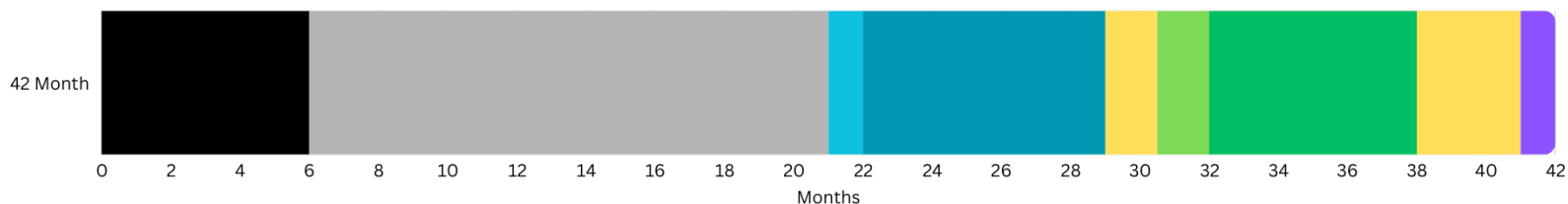
Typical Publication Action: Major Revision

The 42 Month Production Timeline is best suited for existing publications that require a major revision (e.g., new graphics, entirely new sections, expanded appendices content, topics of new technology, etc.). Steps included in this publication process are:

- **Outline – 6 Months:** Taking Chair's review into consideration, committee works to create an outline. Sub-sections can be created by individuals and/or workgroups for review at committee meetings.
- **Draft Development – 15 Months:** Assign sections of outline as needed for content revision/creation. Use workgroups if needed.
- **Committee Ballot – 1 Month**
- **Committee Ballot Comment Disposition – 7 Months**
- **Document Prep – 1.5 Months:** The document is sent to the desktop publisher (DTP) to be laid out per the HI Style Guide.
- **SVR/ANSI Ballots – 1.5 Months:** Both ballots will need to be conducted simultaneously. As the duration of these ballots differ (SVR is 30 days and ANSI 45), HI Staff will compile results as they arrive and conduct additional outreach for balance responses as needed.
- **SVR/ANSI Comment Disposition – 6 Months**
- **Document Prep – DTP & CE – 3 Months:** The document (and related images/graphics/additional content) is sent to the desktop publisher to implement comment disposition edits and then to the copy editor (CE). Committee leadership is invited to review the implemented document before final files are requested.
- **Publication Roadmap – 1 Month:** Final files are requested and HI staff launch the Publication Roadmap. This roadmap results in the document being available to publish/access via subscription.

4.2.1.5 The 54 Month Production Timeline
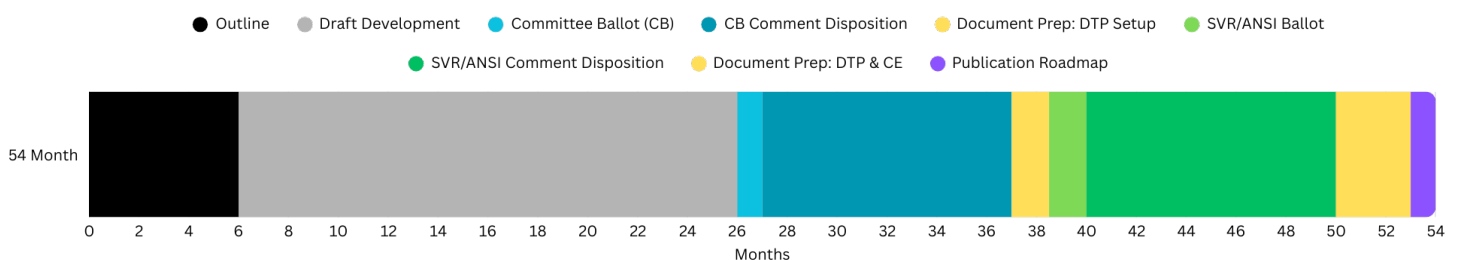
Typical Publication Action: New Publication

It can be especially difficult for New Publications to project a completion date. This Production Timeline aims to blend aspirational milestones with adequate time allotment for writing and revision. The 54 Month Production Timeline allots several months for outline drafting and nearly two years for content completion.

- **Outline – 6 Months:** Taking Chair's review into consideration, committee works to create an outline. Sub-sections can be created by individuals and/or workgroups for review at committee meetings.
- **Draft Development – 20 Months:** Assign sections of outline as needed for content revision/creation. Use workgroups if needed.
- **Committee Ballot – 1 Month**
- **Committee Ballot Comment Disposition – 10 Months**
- **Document Prep – 1.5 Months:** The document is sent to the desktop publisher (DTP) to be laid out per the HI Style Guide.
- **SVR/ANSI Ballots – 1.5 Months:** Both ballots will need to be conducted simultaneously. As the duration of these ballots differ (SVR is 30 days and ANSI 45), HI Staff will compile results as they arrive and conduct additional outreach for balance responses as needed.
- **SVR/ANSI Comment Disposition – 10 Months**
- **Document Prep – DTP & CE – 3 Months:** The document (and related images/graphics/additional content) is sent to the desktop publisher to implement comment disposition edits and then to the copy editor (CE). Committee leadership is invited to review the implemented document before final files are requested.
- **Publication Roadmap – 1 Month:** Final files are requested and HI staff launch the Publication Roadmap. This roadmap results in the document being available to publish/access via subscription.

4.2.1.6 The 60 Month Production Timeline
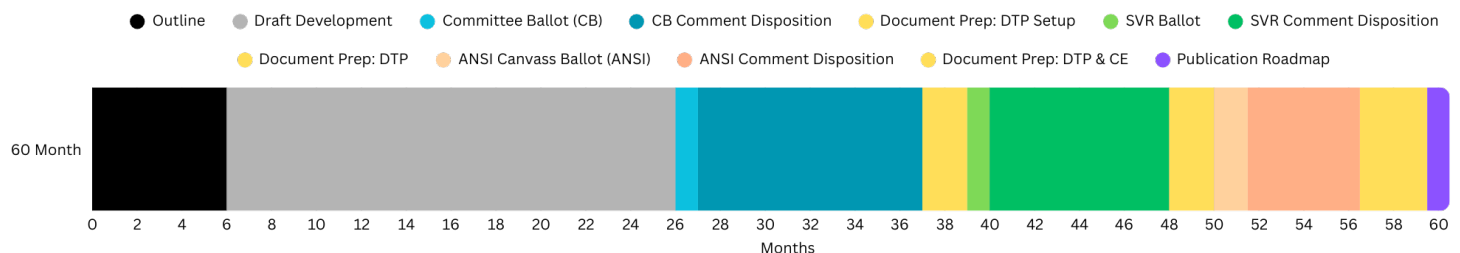
Typical Publication Action: New Publication

Similar to the 54 Month Production Timeline, the 60 Month Production Timeline aims to blend aspirational milestones with adequate time allotment for writing and revision. Unlike the 54 Month Production Timeline, this timeline separates the SVR and ANSI Canvass Ballots into their own blocks. This Production Timeline may be best suited for a topic that expects several comments during balloting. Separating the ballots allows for the committee to manage the quantity of comments and ensures the ANSI Canvass ballot has been fully vetted by the HI volunteer community.

- **Outline – 6 Months:** Taking Chair's review into consideration, committee works to create an outline. Sub-sections can be created by individuals and/or workgroups for review at committee meetings.
- **Draft Development – 20 Months:** Assign sections of outline as needed for content revision/creation. Use workgroups if needed.
- **Committee Ballot – 1 Month**
- **Committee Ballot Comment Disposition – 10 Months**
- **Document Prep – 2 Months:** The document is sent to the desktop publisher (DTP) to be laid out per the HI Style Guide.
- **SVR Ballot – 1 Month**
- **SVR Comment Disposition – 8 Months**
- **Document Prep – 2 Months:** The document is sent to the desktop publisher (DTP) to be laid out per the HI Style Guide.
- **ANSI Ballot – 1.5 Months**
- **ANSI Comment Disposition – 5 Months**
- **Document Prep – DTP & CE – 3 Months:** The document (and related images/graphics/additional content) is sent to the desktop publisher to implement comment disposition edits and then to the copy editor (CE). Committee leadership is invited to review the implemented document before final files are requested.
- **Publication Roadmap – 1 Month:** Final files are requested and HI staff launch the Publication Roadmap. This roadmap results in the document being available to publish/access via subscription.

NOTE: Should other production timelines want to separate the ANSI Canvass Ballot from their production timelines, they are permitted to do so providing the suggestion has been vetted by the Standards Committee. Doing this will adjust the production timeline considerably.

4.2.2 Considering Normative Standard Reorganization During Review of Existing Publication

4.2.2.1 Origins of Normative Standard Reorganization

During the revision of the ANSI/HI 9.6.6 (2022) Pump Piping standard, committee leadership decided to restructure the body of the document to make the requirements and guidance statements within the standard clearer. To that end, each section of the standard was divided into four parts as follows:

1. As applicable, the introductory text follows the main section heading.
2. A specific subsection number for each requirement within the section (i.e. shall statements). References to any applicable notes may follow the requirement.
3. As applicable, any lettered list may follow the a numbered requirement to clarify what the requirement is applicable to, and is also considered normative.
4. Lastly, guidance content follows the numbered requirement(s) and clarifying normative lists and is indicated by the word "Note(s)" in a numbered list (1, 2, 3, etc.).

After ANSI/HI 9.6.6 (2022) was published, the Standards Committee conducted a survey in which they asked purchasers how they felt about the change. The feedback (and committee discussion) determined that the effort was an improvement. It was proposed by the Standards Committee that future revisions of other HI normative standards be considered for the same restructuring.

NOTE: This formatting primarily applies to normative standards that create standard definitions, testing, acceptance, or other minimum requirements. This formatting can be considered for guidelines or specifications that publish definitions, procedural methods to follow, or guidance for minimum requirements. This formatting would NOT apply to guidebooks and white papers.

The following are examples from ANSI/HI 9.6.6 (2022) which illustrate how a technical standard can be reorganized.

Example 1: Note introductory text followed by numbered requirements and notes. This example does not include a lettered list following a requirement.

> **9.6.6.3.3   Effect of piping-generated swirl**
>
> The most disturbing flow patterns entering a pump are those that result from swirling liquid that has traversed several changes of direction in various planes. When fittings, such as tees and elbows (especially two elbows at right angles), are located too close to the pump suction, a spinning action, or swirl, is induced. This swirl may adversely affect pump performance by reducing efficiency, head, NPSHA, and potentially causing noise, vibration, and damage.
>
> **9.6.6.3.3.1**   Liquid in the suction pipe shall approach the pump in a state of straight, steady (uniform) flow.
>
> **9.6.6.3.3.2**   A straight and uninterrupted section of pipe be installed between the pump and the nearest flow-disturbing fitting. Refer to Notes 1-2.
>
> Notes:
>
> 1. See Figures 9.6.6.3.4a - k, which demonstrate the minimum required lengths specified in Table 9.6.6.3.4.
>
> 2. If the minimum recommended pipe lengths cannot be provided, then conformance with the Standard may be demonstrated with a physical model study. Modifications identified in the model study to address adverse hydraulic conditions could include the use of flow-straightening devices (see Appendix E.2).

Example 2: Note the numbered requirement, followed by the lettered list clarifying the requirement, and guidance-based notes are provided last.

9.6.6.3.4.6 Table 9.6.6.3.4 shall be utilized to determine the minimum length of straight pipe (L_2) required immediately upstream of the pump suction nozzle for a variety of commonly used fittings and valve types. Refer to Notes 5 – 7.

    A. Reference example Figures 9.6.6.3.4a - k.

    B. The velocity recommendations of Section 9.6.6.3.2 do not apply to this section of pipe (i.e., the L_2/D_2 section).

    C. If several fittings are adjacent, the fitting with the greatest length requirement shall govern and that length requirement shall be applied to the most downstream fitting (reference Figures 9.6.6.3.4g, h, and j).

Notes:

1. Flow disturbances on the suction side of the pump can lead to deterioration in performance (lower head and/or lower NPSHA), and damage leading to reduced impeller, mechanical seal, and bearing life due to cavitation, pulsation surges, and excessive radial and axial forces.

2. The effect of flow disturbances from fittings installed in the suction piping will diminish with increasing distance. For example, short suction piping is less effective in moderating disturbances before the flow reaches the pump.

3. For VS6 and VS7 pump types, the straight run requirements summarized herein do not apply to suction can piping which is covered in ANSI/HI 9.8.

4. A concentric reducer is typically applied in vertical suction pipes or horizontal pipe installations where there is no potential for air or vapor accumulation. Eccentric reducers are normally used for horizontal installations where there is potential for air or vapor accumulation. Eccentric reducers typically positioned with flat side up to avoid trapping air or vapor. However, in vertical suction lateral which approaches from above eccentric reducer flat side is positioned down as shown in Figure 9.6.6.3.4a to facilitate continuous removal of air or vapor through the vertical lateral.

5. Failure to provide the minimum pipe lengths specified in Table 9.6.6.3.4 can lead to the hydraulic and mechanical issues described above.

6. Double suction pumps are a sensitive application because an elbow in the plane of the pump shaft mounted on the suction nozzle will direct more flow to one side of the impeller than the other (see Figure 9.6.6.3.4l).

7. Figure 9.6.6.3.4m shows examples of flow-disturbing fittings attached directly to the pump that require approval by the pump manufacturer.

4.2.2.2 Publications to be Considered for Normative Standard Reorganization

Building off the success of ANSI/HI 9.6.6 (2022), the Standards Committee proposed that the committee leadership of new standards or revisions of existing standards and guidelines consider implementing the updated format. During section and committee leadership's initial review of the existing technical standards, a volunteer(s) (either former Chair or Vice-Chair, section chair or other) should be selected to review the formatting guidance in section 4.2.2.1 against the current publication and make a recommendation if the updated format should be implemented and an estimate of the additional time it will take to implement it in the revision. The timelines in section 4.2.1 do not include the additional time to create a draft in the updated format, which should be estimated during this review period and added to the committee deliverable timeline.

4.2.2.3 Process of Review for Normative Standard Reformatting

Committee leadership of ANSI/HI 9.6.6 and ANSI/HI 9.6.4 recommended the following process for reviewing and reorganizing a normative standard.

4.2.2.3.1 Understand the Impact on the Publication Timeline

If proceeding with converting an existing standard to the updated format, the committee chair or their designee should prepare an initial document in the updated format and note any areas where the format should be updated. This process may take quite some time (depending on the size of the existing standard) and is not included within the current production timelines in section 4.2.1. That said, the committee leadership may elect to run this review prior to the first committee meeting (following Standards Committee approval) and/or during the "outline" phase.

4.2.2.3.2 Best Practices

1. **Working Format - Word Document with Track Changes.** Rather than starting with a blank document, it is strongly encouraged to use the track changes feature in Word. This will allow the committee leadership the ability to follow the edits of the document when presenting their effort to the full committee.

2. **Focus on the Reorganization First.** To prevent confusion, it is recommend that the consideration of review comments, addition of information, or other content changes be done *after* the reorganization. This will allow to allow cross-check from the original to the reorganized to not be clouded by other changes.

3. **Sections within the Standard:** It is best practice to maintain the same section and sub-section order *unless* it is determined that the current order is unclear.

4. **Style Guide.** Refer to Section 7.2.1.2 Guidance on Special Word Usage. For questions on the formatting of the document, consult the HI Style Guide.

5. **Address Questions to HI Staff.** Should the committee leadership (and/or workgroup members) have questions, do not hesitate to ask HI staff for assistance. Content from the Committee Handbook may be used for guidance, but additional support can be provided upon request.

6. **Prepare a Summary of Changes for Committee Review.** Committee leadership should prepare an overview of the formatting logic for committee discussion and present how the document has been adjusted to meet the new format. This presentation needs to focus on what was removed/moved and why. Committee members are encouraged to ask questions and voice their opinion on specific content if they feel it is important to the standard. We want to make sure we are not removing content that needs to remain.

7. **Prepare a Summary of Changes for the Customer.** After the committee has agreed to the proposed changes, the committee leadership should draft a high-level summary of the changes. HI staff will use this during balloting process and for the final product page.

4.2.2.3.3 Recommended Sequence of Review and Reorganization

After the Standards Committee has approved the committee to begin work, the committee leadership can begin work.

Step 1: Content Review. This part of the process determined a critical review of the information within each section. It is the responsibility of the committee leadership (and/or workgroup) to conduct a thorough review of the content for the following items. Read through the document for the following:

1. Challenge all uses of "should" vs. "shall. "Determine if current guidance ("should" or similar statements) are *actually requirements* in practice and thus needs to be changed to requirements.
2. Ask if the information in each section/subsection in reasonable and in logical order?
3. Is there a need to add any sub-sections that could be added to make things clearer?
4. Carefully read each sentence and evaluate if each sentence is clear.
5. Is there duplicate information? If so, where does is make the most sense for the information to live?
6. Review content relative to the document scope and if information that is excluded from the scope remove it.

Step 2: Mark-up Document. Having reviewed the content, mark-up the document using track changes in Word.

1. Should vs. Shall. Confirm each requirement is intended to be a requirement. If not, change to guidance information. Evaluate if the content in the section or subsection is related to the core concept/thoughts in that section. If the information is not related, mark-up to move to the appropriate section or appendix.
2. Restructure the document to flow locally (if needed). This includes adding sub-sections.
3. Mark-up sentences that need to be wordsmithed for clarity.
4. Delete duplicate information within the standard. If needed, add a reference point for the section where the information not resides.
5. Remove content out of the body of the standard that does not fall within the scope of the document. If the content could be beneficial, consider drafting a separate document with these pieces of content for the committee to review. Perhaps this content could migrate to an appendix.
6. Section introduction: If present in a subsection, general/overview content is listed before the requirements in paragraph form. If there is no general content in the existing Standard, it may be prudent to add a sentence for subsection orientation (describe the focus of the subsection).

7. Requirements: List the requirements first (or immediately following the general info/introduction) and assign a sequential numerical value linked to the subsection, i.e. 9.6.6.3.1.1, 9.6.6.3.1.2, etc.
    a. If several sub-subsections in a subsection, list requirements within that sub-subsection first.
    b. Requirement to be stated directly following the requirement number without a return.
    c. Use bold text for each requirement number.
    d. Reference guidance notes if specific to the requirement, i.e.: "Refer to Note 2."
    e. The "notes" reference follows immediately after the requirement, on the same line.
    f. Locate the "notes" referenced in requirements first in the list of guidance information.
    g. If no requirements in subsection list the guidance content in paragraph form, see 4 for details.
8. Requirements: List the requirements first (or immediately following the general info/introduction) and assign a sequential numerical value linked to the subsection, i.e. 9.6.6.3.1.1, 9.6.6.3.1.2, etc.
    a. If several sub-subsections in a subsection, list requirements within that sub-subsection first.
    b. Requirement to be stated directly following the requirement number without a return.
    c. Use bold text for each requirement number.
    d. Reference guidance notes if specific to the requirement, i.e.: "Refer to Note 2."
    e. The "notes" reference follows immediately after the requirement, on the same line.
    f. Locate the "notes" referenced in requirements first in the list of guidance information.
    g. If no requirements in subsection list the guidance content in paragraph form, see 4 for details.

NOTE: While this is not included in the Timeline for a publication, it is strongly encouraged this work occurs before the first committee meeting OR during the outline block.

4.2.3 Addenda and Errata for Publications

Occasionally, errors within a publication (whether grammatical or technical in nature) are brought to the attention of the Technical Affairs department. If the Technical Director determines the proposed edit (typically submitted via HI's website) is substantial enough, the Technical Director can send to the section chair and previous committee leadership for review. An errata or addenda may be issued and posted on the document's purchase page.

- **Addenda** – Corrections that are made to documents that have been published/printed by the Hydraulic Institute. These corrections are ones that require reaching out to the original consensus body and public review participants, if any, via electronic balloting. HI staff will implement via the HI Addenda policy.
- **Errata**: Modifications that are made to documents that have been published/printed by the Hydraulic Institute. These modifications are only to correct editorial issues. Errata do not need to go through the balloting process; however, they have been reviewed by the Section Chair and past committee Chair, if active. If the Section Chair's discretion other members can be solicited for review. Modifications will be sent to the desktop publisher to produce an updated document.

HI Staff supports the publication of errata or addenda, posting to the publication webpage and provides notifications, when possible, to past purchasers and/or subscribers of the specific document.

4.2.4 Requests for Interpretation

According to **HI Consensus Body Policy and Procedures, Section 8, 2019 Revision**: "An interpretation is an explanation that addresses a question regarding the meaning or intent of a specific statement or requirement in a standards document. Due to the risk to the Hydraulic Institute when the committee chair, Technical Director, or any other individual prepares a written interpretation, which may alter the context or the content of the standards, HI shall not issue interpretations.

4.3 Table on Publication Types and Publication Life Cycles

Publication Type	Accreditation	Description	Language	Ballots	Lifecycle
Standard	HI or ANSI/HI	Quoting from Article XV, Standards, of the By-Laws of the Institute, Section B: "An Institute Standard defines the product, material, process or procedure with reference to one or more of the following: nomenclature, composition, construction, dimensions, tolerances, safety, operating characteristics, performance, quality, rating, testing and service for which designed."	Normative	Committee/ Standards Voting Representative (SVR) /ANSI Canvass	10 Years (HI) or 5 Years (ANSI)
Guideline	HI or ANSI/HI	A Hydraulic Institute Guideline is not normative. The guideline is tutorial in nature, to help the reader better understand the subject matter.	Informative	Committee/ Standards Voting Representative (SVR) / Peer Review	10 Years (HI) or 5 Years (ANSI)
Program Guideline	HI	A Hydraulic Institute Program Guideline outlines a normative process that must be followed to participate in the Program.	Normative	Committee/ Standards Voting Representative (SVR) /Peer Review	5 Years
Specification	HI	A Hydraulic Institute Specification precisely and clearly states requirements that are suitable for incorporating into contract terms. In addition to the stated requirements, it may state options, and provide external references, notes to the specifier, datasheets, or other useful content. All content that is optional or is not a stated requirement shall not conflict with the stated requirements.	Informative	Committee/ Standards Voting Representative (SVR) /Peer Review	10 Years

Guidebook	HI	A Hydraulic Institute guidebook addresses a system component that is non-pump (examples: mechanical seal, variable frequency drive, or IoT system) or addresses a specific system (examples: water/wastewater, life cycle costs, or commercial building services) which are typically covered in Pump Application Guidelines.	Informative	Committee/ Standards Voting Representative (SVR) /Peer Review	10 Years
White Paper	HI	A Hydraulic Institute White Paper defines a product, material, process or procedure with reference to one or more of the following: nomenclature, composition, construction, tolerances, operating characteristics, applications, performance, quality, rating, acceptability criteria, testing and service for which designed.	Informative	Committee/ Standards Voting Representative (SVR) /Peer Review	N/A
Body of Knowledge	HI	A Hydraulic Institute Body of Knowledge, defines training or knowledge requirements for the pump industry, which can be used by entities interested in developing training or certification for industry professionals.	Informative	Committee/ Standards Voting Representative (SVR) /Peer Review	10 Years

4.4 Working File for Review of Existing Publications

Per the Lifecycle and Production Timelines of publications in section 4.2, the current section chair and/or recent committee chair will propose an action for a committee (i.e., revision, reaffirmation, withdrawal) to the Standards Committee. After the Standards Committee approves the committee to work, committee leadership and HI staff will prepare the "working file" for the committee. When reviewing an existing publication, the committee's "working file" should be either a PDF or a Word document of the current publication. The extent of work will determine the "work file" type.

- **PDF File:** Use a PDF file when the existing publication does not require a lot of work (minor revision). Directly editing the PDF **is not** recommended. Committee members should instead comment or highlight the PDF file with their recommended modifications/additions. These comments should be reviewed before the committee ballot. This approach to a review often decreases the desktop publication work later in the process.
- **Word Document:** Use a Word document of the existing publication if the document will require a substantial amount of work (adding/subtracting sections, migrating content – typically a major revision). Track changes are not necessary as the desktop publisher will start with a clean InDesign/FrameMaker file.

NOTE: Reaffirmation publication timeline does not seat a full committee. The review process typically involves a PDF file for reviewing and mark-up by the section leadership and past committee leadership.

NOTE: Should the committee determine during their review that the revision of an existing publication is more substantive than reaffirmation or minor revision, the working file may shift from PDF to Word document.

5. Hydraulic Institute Committees: Structure and Participation

5.1 Required Practices

In order to ensure consistency between all committees under Technical Affairs, the following required practices are adhered to.

5.1.1 Antitrust Policy, Patent Policy and Export Control and Sanction Laws

As an industry trade organization, the Hydraulic Institute serves a legitimate and useful purpose, and may legally engage in a wide variety of activities which serve the industry so long as they do not violate antitrust laws. Antitrust considerations require that the Institute activities be structured so as to promote competition and the Institute must refrain from any activity that might be construed as unlawfully limiting competition among its members or with nonmembers of the Institute. See **Exhibit 3** for the complete Antitrust Policy and **Exhibit 4** for a note on Export Control and Sanction Laws.

Another particularly sensitive subject is patents. Should it come to light that a committee would potentially like to use patented material, it is imperative that the Chair contact the HI Technical Director for complete guidelines on how to proceed.

5.1.2 Lack of Dominance

The publication development and approval process shall not be dominated by an individual, or organization. Dominance means a position or exercise of dominant authority, leadership, or influence by reason of superior leverage, strength, or representation to the exclusion of fair and equitable consideration of other viewpoints.

5.1.3 Due Process and Balance Requirement (ANSI Canvass)

Due process means that any person (organization, company, government agency, individual, and the like) with a direct and material interest has a right to participate as a voting member of the consensus body. Participation shall be open to all persons who are directly and materially affected by the activity in question. There shall be no undue financial barriers to participation. Participation shall not be conditional upon membership in any organization, nor unreasonably restricted based on technical qualifications or other such requirement.

Technical committees are not required to have balanced interest categories, but ANSI canvass approval is required to have balanced interest categories.

5.2 Committee Roles, Responsibilities, and Expectations

When volunteering in an HI committee you will encounter a variety of roles in committee meetings. Table 5.2.1 outlines committee roles and responsibilities.

Table 5.2.1 Committee Roles and Responsibilities

Role	Description	Responsibilities	Selection Process
Chair / Co-Chair	Primary volunteer of the project	- Sets committee direction and leads committee per the purpose, scope and deliverables - Review Committee Handbook - Approving the Agenda and Minutes - Facilitating all Committee Meetings - Support Committee Membership Recruitment - Delegation of tasks to other committee members - Reports to Standards Committee (directly at the Standards Committee meeting OR via the appropriate Section leadership) - Reviews committee participation as needed - Determines ideal meeting schedule in conjuncture with committee - Voting Member of company for committee ballot - Write foreword for publication (guidebooks only) - If committee has Co-Chairs with no Vice-chair, both will support the leadership of the educational deliverables	Self-Volunteered, nominated by Section Chair or other members and approved by the Standards Committee per HI's policy.
Vice-Chair	Secondary volunteer on the project	- Supports chair as needed and by facilitating committee meetings in the Chair's absence - Review Committee Handbook - Support the update of the draft - Support Committee Membership Recruitment - Lead the discussion and review of the roster, scope, purpose, and deliverable at each in-person meeting - Responsible for leading the creation and presentation of educational deliverable - Reviews committee participation as needed - Voting member of company for committee ballot - Write foreword for publication (guidebooks only)	Chair solicits nominations and selects vice-chair per HI's policy.

Member	Active participant in committee work by drafting/reviewing material as requested	- Being able and willing to take on work assignments. - Providing technical input on topics being discussed in the committee. - Attending two-thirds of meetings that are held in person and via web, replying to correspondence, and communicating by email, phone, or other electronic collaborative tools. - Voting member of company for committee ballot	Self-Volunteered
Alternate (to the Member)	Active participant in committee work by drafting/reviewing material as requested	- Being able and willing to take on work assignments. - Providing technical input on topics being discussed in the committee. - Attending two-thirds of meetings that are held in person and via web, replying to correspondence, and communicating by email, phone, or other electronic collaborative tools. - Voting member of company for committee ballot if member is not able to	Self-Volunteered or selected by company's voting member
Information Only	Curious By Stander	- Receives committee correspondence to stay informed - No active participation in committee work except for attendance of calls/meetings - No voting rights for committee ballot - Does not count towards quorum	Self-Volunteered
HI Staff	Project Manager	- Draft the Agenda and Minutes - Distribute Agenda and Minutes to all pertinent committee members - Assist with scheduling and facilitating all Committee Meetings (both in person and online) - Support Committee Membership Recruitment - Responsible for Document Deliverable (balloting and publication process) - Responsible for educational deliverable (creation and presentation) - Submits all ANSI forms/paperwork (if ANSI document) - Reports on behalf of committee to Standards/ TASC committees as needed if committee leadership is not able to attend	Assigned by Technical Director

In order to take official committee actions, a quorum must be present. Quorum is determined by a minimum of one-third of the voting member companies on the committee roster being in attendance. Alternates may be counted as voting members if the voting member of their company is not present. First time attendees that elect to participate as a member or alternate can count towards quorum if needed.

If there is quorum is not met, discussions can be held, but the committee cannot take official action (such as approving minutes, any dispositioning of technical comments, voting on changes to purpose and scope, etc.). The committee can propose actions or changes, but they cannot be finalized until quorum is present at a future meet or distributed to the committee for approval via letter ballot.

5.3 Committee Leadership

5.3.1 Selecting Leadership

When a technical committee is approved by the Standards Committee, the Standards Committee is also responsible for approving the Chair or Co-Chair position(s) following HI's Chair Selection policy. See **Exhibit 9**.

5.3.2 Unexpected Changes in Leadership

Occasionally, committee leadership will step away from their role. Below is some guidance for HI staff and committee leadership to follow:

- **Chair Steps Down:** If a Committee Chair determines that they are no longer able to perform these duties, the Vice-Chair will be asked to support leadership until a new Chair can be approved by the Standards Committee. The Section Chair will consult with the Vice-chair and committee members to solicit Chair nominations to be considered by the Standards Committee at their next meeting.
- **Vice-Chair Steps Down:** If a committee Vice Chair is no longer able to perform these duties, they will advise the Chair and the Chair will solicit nominations and select a Vice-Chair per HI's Chair selection policy.

5.4 Reviewing Committee Roster from HI Staff

HI staff will review the committee roster 1) prior to every HI conference and 2) if the quorum the committee is not able to achieve quorum. When reviewing the roster, HI staff will be looking for those who are actively participating in the committee work. "Actively Participate" is defined at a minimum to be:

- Regularly attend at least 66% of all meetings;

- Take on committee assignments at such meetings;
- Complete such assignments, as agreed, in a timely manner and

Those who do not meet "active participant" will be reported to the Chair and Vice-Chair and listed as "information only" on the roster. HI staff will communicate with individuals of their adjusted status with an accompanying explanation. Those who wish to return to member/alternate status by committing to the active participation criteria.

5.5 Best Practices for Committee Leadership

Committee Chairs are responsible for moving the meeting forward by utilizing the agenda to stay on topic. It is the Chair's responsibility to communicate all rules, policies, and related matters to the members of the committee. The Vice-Chair, if requested, may assist with any of the Chair's responsibilities. It is important to recognize the opinions and insight of all members equally. Clarification on these practices can be brought up to the HI staff supporting the committee to discuss at any point.

5.5.1 Committee Leadership Guidance

Below are some best practices for committee leadership to consider.

- **Purpose and scope.** The purpose and scope should be used to focus the committee's efforts. It should be reviewed by the committee on a regular basis to keep the committee focused on the deliverable. If at any time the committee recommends any substantive changes, these changes must be reviewed and approved by the Standards Committee.
  - **Substantive Changes such as:** Change from a guideline to a standard, expansion, or contraction of the scope, etc. A substantive change is one that directly and materially affects the use of the publication. Examples of substantive changes are below:
    - "shall" to "should" or "should" to "shall";
    - Addition, deletion or revision of requirements, regardless of the number of changes;
    - Addition of mandatory compliance with referenced standards

- **Communicate expectations with HI staff.**
  - Project Management: Discuss with HI staff the level and type of support you will require (e.g. document management/ reoccurring meetings/ reminders for assignments/ schedule and milestones within the agreed to production timeline, etc.)
  - Meetings: Agree to the level of support that you want/need from HI staff during the committee meetings. (e.g. who is taking notes, who is sharing their screen and making edits to the document(s), who is keeping the committee on task)
  - This level of support can be adjusted during the life of the committee.

- **Utilize guidance on document development steps and timelines.** When a committee is initiated, its first task should be to select the appropriate timeline. The steps and publication

type timelines are detailed in section 4.2.1. These timelines should be utilized by committee leadership for setting goals to deliver a successful publication.

- **Set the goals.** As leadership, you are encouraged to set a direction with an end goal and path detailed. Define the style of the collaboration (e.g. use of workgroups, frequency of meetings) and develop a plan for communication with both the committee.
- **Production Timelines: Follow the guidance detailed in Section 4.2.**
- **Committee Meetings: Follow the guidance detailed in Section 6.6.**

5.5 Resolving Conflict – Roberts Rules of Order

The Hydraulic Institute relies on Roberts Rules of Order when formality becomes necessary. When a discussion has resulted in a dispute, the Chair may wish to call a break in the meeting for the individuals to discuss this matter 'off-line'. Upon reconvening, the Chair will request from one individual the status of the conversation. If resolution is found it will be noted in the minutes, if the disagreement has not been resolved amicably, the Chair may elect to:

- Assign the individuals an action item and a date for submission with a status.
- Request the individuals research their points of view and provide material to the Chair for review and consideration. The Chair may then put the topic on the agenda for the next meeting.
- Postpone the conversation to the end of the meeting so that the committee may move forward with the remaining agenda items.

Roberts Rules of Order may also be useful when considering collusion of antitrust issues (refer to section 5.1.1 and **Exhibit 3**). For more information on Roberts Rules of Order, visit www.rulesonline.com.

6. Committee Meetings: What to Expect and Best Practices

6.1 Meeting frequency

Committees typically hold three in-person meetings a year coinciding with the HI Annual, Technical and Fall Conferences. Committees often meet virtually between the in-person meetings to meet the document deliverable timelines. The schedule of interim meetings is set by the Chair in review with the committee, and typically depends on the stage of document development and the type of work the committee is doing.

6.2 Committee Launch Following Standards Committee Approval

Once a NWIP including purpose and scope has been approved by the Standards Committee, the new Committee Chair may then request HI Staff to arrange the first committee meeting at the next HI conference. The formation of the committee will be publicly announced, and the HI staff assigned to the committee will manage the committee roster.

Prior to the first meeting, the Chair will work with HI staff to develop an agenda and set initial deliverable deadlines per the development steps and timelines outlined in section 4.2.1. The focus of the first meeting should have extra attention on soliciting committee membership, thorough review and setting of the purpose and scope, review of deliverable timelines, and setting a scope of work and path forward based on the deliverable timelines.

At this meeting the committee should agree to a purpose and scope for remainder of the development, and adjust deliverable timelines as needed.

6.3 Meeting Agendas

In-person meetings held at HI's conferences will follow a formal agenda. The agenda is prepared by HI Staff and approved by the Chair within two weeks of the meeting. The finalized agenda will be posted on the committee's Team as well. See **Exhibit 5** for an example of an in-person committee meeting agenda.

Committees and work groups of committees regularly meeting via the web between conferences. These interim meetings do not need to follow a formal agenda, but when the meetings are created the purpose of the meetings should be stated, and a summary of the meeting with actions should be distributed following the meeting.

6.4 What to Expect at an In-Person Committee Meeting

Most committees will meet at each of HI's three conferences (typically February, June and October every year). With rare exceptions, participation in a committee meeting at a HI conference requires in-person attendance. Call-in options are rare exceptions made per HI's remote meeting policy. See **Exhibit 10.**

At the beginning of the meeting, a sign-in sheet is circulated where committee members/alternates can sign in and attendees can notify HI staff they are interested in joining the committee. HI staff will check the sign-in sheet for quorum. Once quorum is determined to be present (i.e. 1/3 of the voting membership of the committee), the meeting can begin. If quorum is not present, attendees who wish to join the committee can be counted toward the quorum count.

The meeting will then follow the formal agenda (see **Exhibit 5** for example) with the Chair of the committee leading most discussion and the Vice-Chair reviewing the purpose, scope and deliverables. The majority of the meeting is spent on spent on tasks such as outline review and confirmation, summary of progress and outstanding actions, review of prepared content or recommendations from prior action items, or comment review and disposition. Items such as the previous in-person meeting minutes, any edits to the purpose, scope, and deliverables, and adjournment are determined via a motion to approve. Other items that significantly change the document or are of dispute are also motioned for approval so they can be documented in the meeting minutes.

HI staff is responsible for taking notes, resolutions, and action items during the meeting, and specifically summarizing action items and their due dates. These notes will be transferred into the official meeting minutes which will be made available to the committee on Teams and circulated prior to the next in-person meeting.

6.5 What to Expect from a Virtual Committee Meetings

The frequency of interim meetings is generally determined during the path forward agenda item at the committee's in-person meeting. Some Chairs will set recurring calls on the calendar while others opt for a more flexible schedule. Meeting times maybe set in the in person meeting or may be selected by polling (doodle poll) membership. Regardless of how often, it is encouraged for the committee to meet in between conferences if needed to meet the deliverable timeline.

All interim meetings are conducted via Microsoft Teams and are typically limited to one hour. HI staff is responsible for adding people to the Teams roster and ensuring members, alternates, and information-only participants receive committee communication. If you do not use Microsoft Teams at your place of employment please make sure you are able to access the HI Teams site (either via the desktop app or browser) prior to the committee meeting. For more information on how HI uses Microsoft Teams please see section **7.1 Teams best Practices**

HI staff will start the meeting and conduct a roll call of attendees to ensure quorum is present. Once a quorum has been achieved, the Chair and/or Vice-Chair of the committee will lead the meeting. As the hour closes, HI staff will step in to inquire when the next meeting should be set (if not already a reoccurring call) and coordinate schedules accordingly. While no formal meeting minutes are required, a brief summary of action items and path forward should be agreed to and sent out by HI staff.

6.6 Best Practices for Running Committee and Workgroup Meetings

6.6.1 Best Practices for Running an In-Person or Virtual Meeting

- **Be on Time:** Arrive 5-10 minutes before the start of the meeting, if possible.
- **Quorum:** HI staff is responsible for noting when quorum is present.
- **Develop and follow agendas for committee meetings**: The agenda for a committee meeting should be determined by the Chair/Vice-Chair in conjunction with HI staff and be circulated to the entire committee prior to the meeting. The agenda should be used as a tool to keep the committee on task and focused.
- **Preparing before a committee meeting:** 1-2 days prior to the meeting, HI staff or Workgroup Leader should send out an email reminder with the purpose of the meeting and action items. For in-person meetings, the agendas are circulated by HI Marketing and Events staff.
- **Time management of a committee meeting:** It is the responsibility of the Chair to be aware of the time constraints of the meeting. Placing time parameters on the agenda may assist with time allocations. The Vice-Chair, if requested, may also serve to remind the Chair of time limitations on a particular agenda topic.

- **Come Prepared, Focus Conversation, and Utilize Work Groups**:
    - *Focus Conversation:* Being decisive is helpful. When discussions are getting off topic, restate the goals of the meeting agenda. If the committee feels further discussion is necessary, the committee leadership will recommend an individual or work group to review content offline and make a recommendation back to the committee. If a proposed edit/ content is found to be out of scope for the intended deliverable, committee leadership will refer edit/content to the appropriate committee for consideration.
    - *Assignments – Individual and Workgroups*: Reviewing and editing document sections in a large group is counterproductive. Utilize committee members or workgroups to review and edit content to be shared with the full committee. The committee will discuss it at a future meeting.
    - *Ballot Comment Review:* Prior to a committee meeting, the committee leadership should review all comments and come prepared with a recommended disposition for committee consideration or specific ask for the committee to consider. Technical comments should be addressed with the committee. The remainder should be ranked and only the more substantive should be addressed with the larger group. This shall be discussed during the committee meeting.
    - *Clearly state and record action item*: Following discussion, summarize perspectives and make a recommendation for path forward and record action items. HI staff typically sends out the summary of action items.
    - For in-person meetings, note how much time the committee would like at the HI next conference.

6.6.2 Best Practices for Running a Working Group Virtual Meeting

The purpose of a workgroup is to focus on a specific topic and come prepared to the next committee meeting with a proposal.

- Typically, workgroups are comprised of 3-5 members.
- Workgroups are flexible and can meet for either the duration of a committee OR for a set period of time.
- 1-2 days prior to the meeting, HI staff or Workgroup Leader should send out an email reminder with the purpose of the meeting and action items.
- Workgroup leader needs to be present for a meeting to run.
- Schedule reoccurring virtual meetings if possible.
- HI staff to send out action items, volunteers, and due dates to entire workgroup after meeting.

6.7 Committee Meeting Minutes

HI Staff will produce draft minutes for all in-person meetings. The minutes will contain salient points from the meeting as well as any motions, action items, future business, next meeting information and any attachments will be noted at the bottom of the minutes. HI Staff will draft the minutes within four (4) weeks from the end of the meeting, uploaded the draft minutes to the Microsoft Teams folder and provide the Chair a two-week period review and edit the minutes prior to notifying the committee that the minutes are available. The minutes will be reviewed and approved by the full committee at the next in-person meeting, but the minutes can be accessed by all committee members at all times. Refer to HI Minutes and Action Items Policy **Exhibit 6.**

6.8 Committee Action Items

Action items will be posted to Teams as well. The exception to that rule may be when any one member receives numerous action items. HI Staff will put together a listing of all of the member's action items and post it to the committee's Teams site. All action items assigned during the meeting will have a due date designated in the minutes. Refer to HI Minutes and Action Items Policy **Exhibit 6.**

There will be times that an action item will be handled by a small workgroup of committee members. The Chair should ask for one committee member to take the lead role. This individual will be the one to report back to the committee with their findings. This working group may have discussions outside of the committee meetings or hold teleconferences as necessary without the necessity of minutes. The Chair may elect to be copied on the working group correspondence.

The working group leader will provide the recommendations of the work group to the committee. The committee as a whole will determine during a committee meeting or during the committee ballot whether or not workgroup recommendations are approved. Once work group leader hand off the material to the committee, the work group disbands. Should this material come into question later in the process, the same individuals may elect to revisit the material for further consideration and editing.

7. Document Development and Balloting

This section of the Handbook outlines best practices, requirements, and typical processes involved in the creation of a publication at the Institute. For guidance on formatting requirements, consult the HI Style Guide.

7.1 Collaborating on Microsoft Teams

Hydraulic Institute committees use Microsoft Teams as the primary collaboration tool. HI staff manages a page on the HI website that provides up-to-date guidance on how committee members can work best in the Teams environment.

For more information, please see https://www.pumps.org/working-within-microsoft-teams/

7.1.1   Best Practices for Teams at HI

- Ask the HI staff who is managing the committee about access to teams
- Do not download, edit, and re-upload a document you are actively collaborating with other committee members on
- Work within Teams whenever possible especially if collaborating with other committee members in a document
- Save files in the appropriate folder (see https://www.pumps.org/working-within-microsoft-teams/ for more information)
- Join HI committee meetings within the "HI Universe" by logging out of your company's Teams and signing in to HI's Teams

7.2 Guidance on Content Creation for Publications

7.2.1   Language Practices

7.2.1.1 Plagiarism

It is essential for all HI members and Standards to recognize that plagiarism in any form, at any level, is unacceptable and is considered a serious breach of professional conduct, with potentially serve ethical and legal consequences. Refer to HI Policy on Plagiarism, in **Exhibit 8**.

7.2.1.2 Guidance on Special Word Usage

Hydraulic Institute Standards will strive to be normative but historically, documents produced have contained a mix of normative and informative material. That remains an acceptable practice. That said, there are some publications that are normative by design and others that are purely meant to be informative. See 4.3 Table on Publication Types and Publication Timelines for the specific publication types that are normative, and which are informative.

Below is a list of language descriptions and guidance on when to use a specific language.

- **"Shall", "should", "may", "can", and "recommended":**
  - The word "shall" is used to indicate mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted ("shall" equals "is required to").
  - The use of the word "must" is discouraged and shall not be used when stating mandatory requirements; "must" is used only to describe unavoidable situations.
  - The use of the word "will" is discouraged and shall not be used when stating mandatory requirements; "will" is only used in statements of fact.
  - The word "should" is used to indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required; or that (in the

negative form) a certain course of action is discouraged but not prohibited ("should" equals "is recommended that").

- o The word "may" is used to indicate a course of action permissible within the limits of the standard ("may" equals "is permitted").
- o The word "can" is used for statements of possibility and capability, whether material, physical, or causal ("can" equals "is able to").

- **"That" and "which":** The words "that" and "which" are commonly misused; they are not interchangeable. "That" is best reserved in essential (or restrictive) clauses, "which" is appropriate in nonessential (or nonrestrictive), parenthetical clauses. Simply stated, if a comma can be inserted before the word "that" or "which", the word should be "which". If a comma would not be used, the word to use is "that".

- **"And/or":** The term "and/or" shall be avoided and, wherever possible the statement shall be rewritten to clarify the meaning. For example: Nuts, or screws, or bolts, or a combination thereof; not, nuts, screws, and/or bolts

- **Nouns and Adjectives:** Nouns may be used as adjectives, provided these adjectives are no longer than three words.

- **Non-technical Expressions:** Non-technical expressions should be used wherever possible. If unusual terms are used, they should be defined.

7.2.2   Intellectual Property

Intellectual property (IP) is defined by Merriam-Webster as the right or registration (such as a patent, trademark, trade secret, or copyright) related to or protecting property. This section details specifics of the use of copyrighted material of members, use of HI IP, and copyright in HI products.

7.2.2.1   Use of Copyrighted Material Provided by Members

During the development and review process, it is not uncommon for committee members to provide graphics, tables, images, or other material to HI for use within a specific product. Content that is provided by an HI member and/or partner that is under copyright will need to be authorized for republication by the owner via the HI Permission Form (see section 7.2.2.3 Copyright Images and Permission Form) to abide by the HI plagiarism policy listed in Exhibit 8.1.

By participating within a committee, original work (i.e. without copyright) provided by committee leadership, members, and/or alternates for the publication can be used by HI without additional authorization from the contributing member or partner.

7.2.2.2 Use of Hydraulic Institute Intellectual Property

7.2.2.2.1 Citing the Hydraulic Institute
The Hydraulic Institute retains the rights to its intellectual property including, but not limited to, HI standards, specifications, guidelines, guidebooks, white papers, free products, and related HI IP. As such, it is not permissible to use, republish, or recirculate published materials (figure images, tables, charts, etc.) of the Hydraulic Institute without written permission from the Technical Director. Requests can be

sent to HITechnical@pumps.org and are subject to review. Should the request for use of HI IP be denied, the requestee is not allowed to use the requested HI content. If they are found to having done so, legal action may be considered.

7.2.2.2.2 Inputting the Hydraulic Institute in Artificial Intelligence Tools

Hydraulic Institute prohibits the entry of HI standards, specifications, guidelines, guidebooks, white papers, and related HI IP into any form of AI tools, such as ChatGPT (or equivalent).

7.2.2.2.3 A Note on Committee Review

It is acceptable practice for HI staff to provide committee members with a watermarked copy of the publication for review purposes. The committee review document is for the sole use of the individual and/or committee and is not to be distributed or used for any other purpose.

7.2.2.3 Copyright Images and Permission Form

When creating a publication, product or course it is imperative that copyright laws be followed and proper documentation be kept. According to Merriam-Webster, copyright is the exclusive legal right to reproduce, publish, sell, or distribute the matter and form of something (such as a literary, musical, or artistic work). Within HI, copyright can impact the use of a particular figure, graph, or image in a publication or product.

To ensure that copyright be followed, HI has created two distinct forms: one to use when granting permission to use HI copyrighted material, and the other to use when asking for permission to use another organization's copyrighted material. Please ask HI staff for the appropriate form when submitting images for a publication.

Intellectual property is provided when working in a committee structure. There is a distinction between the content that is provided by HI Member companies/sponsors and the content that is sourced outside of the HI Member body. Most of the content (images/graphs/graphics) should come from HI Member companies/sponsors.

NOTE: By participating on a committee, you are agreeing that all content provided is free of copyright or permission is granted by the member's organization for the Hydraulic Institute to republish and use for the committee's purpose and all deliverables and derivatives. Any content provided that is not free of copyright or owned by the member's organization must be brought to the attention of HI Staff so that copyright release can be sought. Refer to HI Policy on Plagiarism in Exhibit 8.

There are specific ways an image should be credited depending on the publication type. Below is guidance:

- Guidebooks:
    - At the end of the guidebook appendices there is a list of all images with the credit line. This is called the Image Credits Appendix.
- Standards:

- - There is no credit line and/or image credits appendix within ANSI/HI or HI Standards because standards must remain product neutral.
- White Papers:
  - If applicable, the committee can create an appendix for images. This is not a necessary step in the white paper development.
- Webinars:
  - There is no credit line and/or image credits to achieve product neutrality. If an organization outside of HI membership will only provide an image with credit, an image credit slide at the end of the presentation can be added.
- PSM Courses:
  - There is no credit line and/or image credits with the example of external (not an HI Member Company/ not eligible for HI Membership/Sponsorship)

7.2.3 Appendices in HI Publications

According to Merriam-Webster, an appendix is "supplementary material usually attached at the end of a piece of writing." In HI publications, appendices are frequently used to bolster the topic of a particular document. Given the technical nature of HI publications, appendices are split into two types each with their own language usage.

7.2.3.1 Normative Appendices

Although uncommon, normative content can reside within an appendix. Language within a normative appendix needs to follow the normative language guidance found in section 7.2.1.2 Guidance on Special Word Usage of the Handbook.

Normative appendices are placed before informative appendices. Additionally, a normative appendix needs to have the label (Normative) after the title of the appendix.

7.2.3.2 Informative Appendices

Informative appendices are used more often within HI publications (especially guidebooks). Common examples are checklists, image references, and additional information on topics (electric motors, VFDs, instrumentation).

Informative appendices are placed after normative appendices. The label (Informative) needs to be placed after the title.

Appendix A (Informative)

System curves

Refer to Appendices Introduction located immediately preceding the Appendix A.

A.1   Calculation of the system curve

The performance of the pump is usually represented in a diagram format by the so-called *pump H-Q curve* (head capacity curve). The corresponding curve for the piping system is called the *system curve*. The flow rate at which the pump and system curves intersect each other is the flow that will pass through the piping system Refer to ANSI/HI 14.3 figure 14.3.3.2 titled "pump and system curve interaction" for graphical representation. To correctly determine the sizes of the pump and piping system, knowledge of the characteristics of their respective curves is necessary.

7.3 Overview of Balloting

Every document published by the Institute goes through a series of ballots all of which are conducted via email. There **are three types of ballots** issued throughout the draft development process: committee ballot, Standards Voting Representative (SVR) ballot, and ANSI Canvass ballot (or peer review), in that order. Invitations to participants in all ballots and the ballot are managed by HI Staff. Please see **Exhibit 7** for an example of language used in a committee ballot email.

7.3.1 Rounds of Balloting that Occur

The first two ballots are internal HI votes and are governed by the Hydraulic Institute Policies & Procedures.

1. The committee ballot includes the voting members or their alternate of the HI committee drafting the document.
2. The SVR ballot includes HI Standards Voting Representatives (SVRs) or their alternate (ASVR) which are representatives of HI Member and Associate Member companies. The SVRs might be outside of the committee membership.
3. The final ballot is the ANSI Canvass ballot, which utilizes the Consensus Committee Method. The requirements for the consensus body is governed by the ASNI *Essential Requirements*, which includes stakeholders outside of the HI committee and must meet a balance of interest (Producers, Users, and General Interest). At the same time as the ANSI Canvass ballot the document is announced for public review. Any public reviewers do not vote on the approval, but any comments submitted need to be dispositioned and responded to in a timely manner.

NOTE: HI publications that are not approved by ANSI go through a peer review period in lieu of the ANSI Canvass.

Table 7.3.1 below provides an overview of the balloting types.

Table 7.3.1 – Balloting Types and Timelines

Ballot Round	Who Participates in the Ballot	Parameters	Committee Action
Committee (Internal to HI)	Voting members of a company that is on the committee roster at the time of the committee ballot. An alternate may cast a ballot if the member is unable to do so.	• 30 calendar days • 1/3 of the voting body must cast ballot inclusive of abstentions • 2/3 of the votes cast (excluding abstentions) shall be affirmative, affirmative with comments	To close the close, HI staff will compile the comments, tabulate the ballots, and send a summary the committee roster. For editorial comments - The Chair and Vice-Chair will determine whether to include the committee or to enlist a small group of key committee members to review the comments and provide resolution. For Technical comments – Disposition in a meeting with quorum is required. Consensus is important to continue to the next ballot before reaching the final publication stage.
Standards Voting Representative (SVR)* (Internal to HI)	A company's assigned Standards Voting Representative or Alternate Standard Voting Representative.		
ANSI Canvass and Public Review (ANSI/HI documents only) (External of HI)	Those who respond to the open invitation to review the document. They are self-reported as "producer," "user," or "general interest".	• 30 calendar days for ballot • 30-45 calendar days for public review depending on the page length of the document • Simple majority (50% +1) of the voting body must cast ballots inclusive of abstentions • 2/3 of the votes cast (excluding abstentions) shall be affirmative, affirmative with comments • Refer to HI's ANSI procedures for more information	

Peer Review (HI documents) (External of HI)	Those who respond to the open invitation to review the document.	• 30 calendar days • No voting	
Recirculation Ballot	Those who participated in the most recent ballot.	• Typically, 14-30 calendar days	A recirculation ballot permits participants to review/comment on a specific section(s) of a document but not the full document. This ballot typically has an abbreviated duration of 14 calendar days. NOTE: Should an individual not participate in the recirculation ballot, their original ballot response stands and is counted toward the recirculation ballot quorum totals.
Re-balloting	Those who participated in the most recent ballot.	• The duration of the most recent ballot type	Re-balloting permits participants to review/comment on the entire document and typically run a full ballot duration depending on the type of ballot that was more recently completed (i.e., re-ballot a committee ballot typically takes 30 calendar days). NOTE: Should an individual not participate in the re-balloting, their original ballot response DOES NOT stand. A new ballot must be cast to be counted toward the re-ballot quorum totals.

* The SVR ballot and ANSI Canvass ballot may be issued concurrently with the committee Chair's approval.

7.3.2 Comment Options

Per the instructions included in the first few pages of HI ballots, reviewers of a document have two options for comment types: Editorial and Technical. As of June 2024, the "General Comment" was retired and is no longer in use as a comment type.

Once members have access to the document, they will be instructed to post comments using the sticky notes option in Abode Acrobat (or equivalent PDF reader). There are times that comments are not provided via the sticky notes tab (examples include spreadsheet format, Word format, or even mark-ups done by hand). It is imperative not to rely on those means. Please contact HI Staff prior to submission.

All comments on the draft must be submitted to HI Staff before the ballot closes. Once the ballot closes HI Staff consolidates all comments into one document for review. During the review of comments, only HI Staff will know the name of the commenter. The commenter may elect in review meetings to acknowledge a comment as their organization.

7.3.2.1 Editorial Comment

Editorial comments are typically grammatical or formatting in nature. Editorial comments also include the editing of existing or the proposal of new content which provides clarity of the content's original intent.

Definition: Editorial comments revise content in such a way that it does not impact how the document is used.

Examples include but are not limited to:
- Figures: Improving ppi quality of image used in figure.
- Sentences: Adjusting sentence structure for grammatical errors. Editing sentences or adding sentences which clarify existing topics but does not alter the intent of the original content.
- Standard formatting previously approved by Standards Committee:
  - Numbering of sections.
  - Numbering of figures.
  - Equation formatting.
  - Unit policy of metric (US) in equations and text.
- Content Format:
  - Rearranging content within section(s) of the document.

NOTE: Editorial comments may be elevated to technical comments by the committee Chair, Vice-chair, or their designee.

7.3.2.2 Technical Comment

Technical comments require a proposed resolution for the committee to disposition.

Definition: Technical comments result in a revision of content that ***materially impacts*** the use of the publication.

Examples include but are not limited to:
- Figures: Highlighting an error in a figure and change the drawing of the graphic to properly represent a curve.
- Equation: Correcting a calculation that produced an error.
- Changing a requirement or guidance (should to shall and vice versa.)
- Replacing or adding content new topic(s) that not previously covered or revision which goes beyond the content's original intent.

7.3.2.3 Comment Disposition Types and Guidance

Comment disposition is required for all comments submitted via balloting at HI. Disposition of comments can result in no change, edits to the draft, or be consideration in future editions.

- **Editorial comments** may be resolved by committee leadership or their designee (i.e., editorial workgroup) without the full committee's approval.
- **Technical comments** require a quorum of the committee membership for disposition.
- **Negative ballot comments** require a quorum of the committee membership for disposition. See section 7.3.3.1 A Note on Negative Ballots for more information.

In 2025, the Section Leadership group decided on a format for dispositioning comments in a marked-up PDF file. The goal of adopting a format is to improve communication on dispositions. We want to ensure that the committee's intent is clear one day, one week, or several months after the disposition has been marked down. Having a similar format for dispositioning comments will clarify what action(s) need to be taken on comments. This can be done in three ways:

1. Clearly writing the disposition within the comment thread.
2. Provide a separate comment with guidance for the desktop publisher (DTP).
3. Utilizing the comments "status" function.

7.3.2.3.1 Disposition of a Comment

All comments that have been received (either technical or editorial) need to be reviewed and dispositioned prior to the next ballot. This dispositioning is typically done in a marked-up PDF file so the desktop publisher can implement edits more easily. Should the edit be extensive, a Word document can be used a supplement. Make sure the HI Staff have all files necessary for the DTP to implement edits correctly.

Either HI Staff or committee leadership may manage the document during the dispositioning. The key is to be consistent in the comment notes and utilizing the checkmark function.

Typically, comment dispositions fall into several categories with the most common examples being

- Agree to change, see edits
- Agree to delete, no substitution
- Do not agree to suggestion, no change
- Hold for future edition
- Send to workgroup to review and advise (NOTE: This will still need a final resolution once the workgroup has determine the best path forward)

The format for comment dispositions is as follows:

1. Include the "Who"
2. Include the "Action"

3. Note what the "Action" is

Examples: (NOTE: FC = Full Committee)

- FC Agree to change: Replace highlighted text with yyy.
- FC Agree to change: Edits in separate document {titled} and {located at}.
- FC Agree to no change: Hold for future revision.
- FC Agree to no change: No edits needed.
- Chair Agree to change: Replace figure with new image {titled} and {located at}.
- Chair Agree to change: Move highlighted paragraph so that it is located at specific location.
- Staff Agree to change: Add a new paragraph located (specific location) as follows: (paraph text).

NOTE: Following the disposition, the person who is marking up the PDF needs to select the "checkmark" to ensure that filtering works as intended.
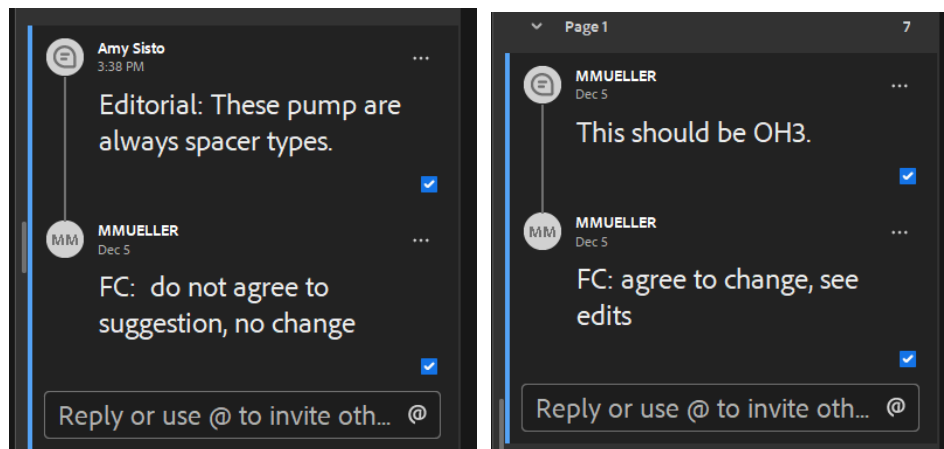
7.3.2.3.2 Instructions for the Desktop Publisher (DTP)

The desktop publisher works alongside HI Staff to implement the proposed changes by the committee. It is the responsibility of all in a committee meeting to ensure that the dispositioned comment clearly indicates to HI Staff and the DTP what must be done. Ambiguity leads to confusion. HI Staff and the committee leadership need to work together to ensure that the document is marked up appropriately prior to handing over to the Technical Operations Team for work with the DTP.

NOTE: HI staff **must** unlock the PDF for committee review so the committee leadership can copy and paste text. Ask the HI staff managing your committee to do this at the start of the disposition process

Below is some guidance.

- Any disposition that requires a change to the document will be placed in the document as a new comment.

- These new comments will start with a note for the DTP to take action as an aid in sorting action items.
- These comments will be specific and detail only the changes required and no commentary and/or explanation as to why.
- These comments shall use either the strikethrough, insert text or replace selected text icons in Adobe (highlight is an option too)

Typical comment dispositions are as follows:

- DTP: Replace with {insert new text}.
- DTP: Delete text no replacement.
- DTP: Place a comma after the word "done".
- DTP: Replace highlighted text with: {insert new text or a file attachment location}.
- DTP: Replace highlighted text with yyy.
- DTP: Edits in separate document {titled} on Teams.
- DTP: Replace figure with new image {titled} on Teams.
- DTP: Move highlighted paragraph from xxx to this location.
- DTP: Change section number to be X.X.
- DTP: Add (informative) after the appendix title.
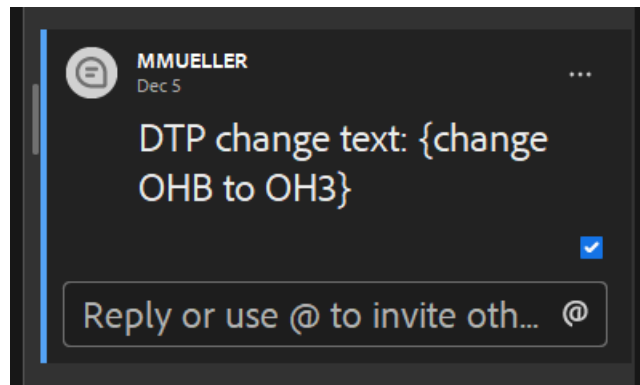
7.3.2.3.3 Utilizing the Comment "Status" Function

While there are multiple ways to indicate that a comment has been reviewed and dispositioned, the preferred method is selecting the checkmark to the comment upon final completion. See example below:
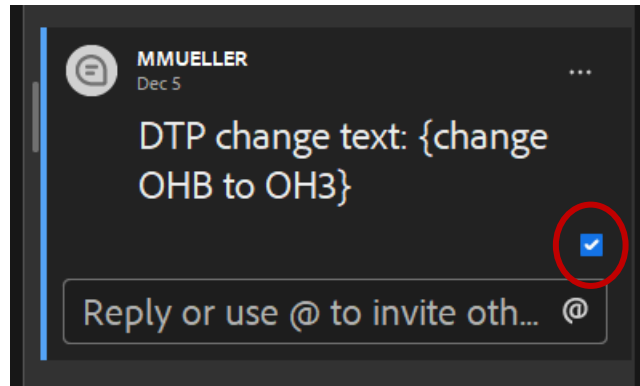
All comments, dispositions, and DTP actions shall have the check mark added to them to indicate the item is complete from the committee standpoint. In the filter section of comments, you can filter to show unchecked comments so that the committee is working on open comments still.

NOTE: You may have to add the check mark individually to the comment and disposition within a thread to ensure the filtering works as intended.

7.3.3   Types of Ballots that Can Be Cast

Participants within a ballot have four options when casting:

- Affirmative – document is acceptable as written and ready for publication.
- Affirmative w/ Comment(s) – document is acceptable following committee consideration of comments.
- Negative w/ Comment(s) – document is unacceptable and requires substantive revision before publication. For negative vote, balloter must indicate was comment(s) or reason(s) that result in the document being unacceptable.
- Abstain – unable to vote affirmative or negative because of time constraints or lack of technical expertise.

NOTE: Negative ballots must have an accompanying reason for the committee to properly consider the ballot and provide a disposition.

7.3.3.1 A Note on Negative Ballots

HI committees make every reasonable effort to resolve negative ballot comments before moving forward. However, it may not be possible to resolve all negative ballot comments, and a document can proceed when approved per Table 7.3.3.1. This table provides guidance on resolving a negative ballot (and outlines follow-up actions) by ballot type.

Table 7.3.3.1 – Guidance on Negative Ballots by Ballot Type

Ballot Round	Dispositioning Negative Ballot	Next Steps
Committee	1. HI Staff provides negative ballot to committee leadership (anonymous.) 2. Committee leadership review and draft a proposed path forward. *Optional:* committee leadership may discuss the negative ballot with the commenter to better understand their perspective and develop a proposed resolution that is more likely to satisfy the negative ballot. 3. The proposed path forward is discussed with committee in a meeting that has achieved quorum. NOTE: Since this is a committee ballot the negative balloter may be in the room allowing for a robust discussion on the topic. NOTE: The resolution of a negative ballot needs to be documented in writing.	Inform Negative Balloter: HI staff will present the committee's disposition to the negative balloter. The negative balloter has the option to withdraw or retain their negative ballot. Substantive Change: If the committee agrees to make a substantive change during a meeting with a quorum to the document, HI staff will revise the content in the file. In addition to a committee meeting with a quorum, Committee leadership may elect to do a recirculation ballot. No Substantive Change: HI staff will communicate with negative balloter the reasons why their negative ballot was not integrated into the document. The next round of balloting can take place. NOTE: The committee can disposition a negative ballot for a future revision.
Standards Voting Representative (SVR)	1. HI Staff provides negative ballot to committee leadership (anonymous.) 2. Committee leadership review and draft a proposed path forward. *Optional:* committee leadership may discuss the negative ballot with the commenter to better understand their perspective and develop a proposed resolution that is more likely to satisfy the negative ballot. 3. The proposed path forward is discussed with full committee in a meeting that has achieved quorum. NOTE: The resolution of a negative ballot needs to be documented in writing.	Inform Negative Balloter: HI staff will present the committee's disposition to the negative balloter. The negative balloter has the option to withdraw or retain their negative ballot. Substantive Change: If the committee agrees to make a substantive change during a meeting with a quorum to the document, HI staff will revise the content in the file and issue a recirculation ballot to the SVRs. After the recirculation ballot has been reviewed and dispositioned by the committee, HI staff will update the file and prepare for the next round of balloting if ANSI was not concurrently balloted.

		No Substantive Change: The next round of balloting can take place (if ANSI was not concurrently balloted). NOTE: The committee can disposition a negative ballot for a future revision.
ANSI Canvass and Public Review	1. HI Staff provides negative ballot to committee leadership (anonymous.) 2. Committee leadership review and draft a proposed path forward. *Optional:* committee leadership may discuss the negative ballot with the commenter to better understand their perspective and develop a proposed resolution that is more likely to satisfy the negative ballot. 3. The proposed path forward is discussed with full committee in a meeting that has achieved quorum. NOTE: The resolution of a negative ballot needs to be documented in writing. This is especially important for HI's ANSI procedural requirements.	Inform Negative Balloter: HI staff will present the committee's disposition to the negative balloter. The negative balloter has the option to withdraw or retain their negative ballot. Substantive Change: If the committee agrees to make a substantive change during a meeting with a quorum to the document, HI staff will revise the content in the file and issue a recirculation ballot to include the ANSI consensus body. Additionally, HI Staff will submit the substantive change for an ANSI public review. After the committee reviews the recirculation ballot, public review comments, and provides dispositions, HI staff will update the file and prepare for publication. No Substantive Change: HI staff will update the file and prepare for publication. NOTE: The committee can disposition a negative ballot for a future revision.
Peer Review	NOTE: Peer review is not required for the publication of HI documents. Peer review applies to guidebooks and white papers. At the time of the SVR ballot, HI staff will request a peer review from those outside of the committee. Peer review is not *technically* a ballot and as such the committee can accept/reject the feedback without having to notify the reviewer of their disposition.	

7.3.3.2 A Note on Recirculation Ballots

As noted in Table 7.3.1, recirculation and re-balloting are two different processes. Recirculation ballots occur when a substantive change has been reviewed and approved by the committee. Proposals that constitute a recirculation ballot typically stem from ballot comments but may also result from

committee work. The typical duration of a recirculation is 14-30 days depending on the substance of the edit.

The content to be reviewed and recirculated is the revised and/or new content. As a result, HI staff will prepare a document with such revised and/or new content and circulate it to the balloting list. As an example, if the recirculation ballot came from an SVR comment, the recirculation ballot will return to the SVR balloters.

NOTE: Should an individual not participate in the recirculation ballot, their original ballot response stands and is counted toward the recirculation ballot quorum total.

NOTE: Should a recirculation ballot be conducted after an ANSI Canvass ballot, a public review will have to be issued by HI Staff. If the substantive change is less than 5 pages, the timeframe for a public review is 30 calendar days. If the substantive change is more than 5 pages, the timeframe for a public review is 45 calendar days.

7.3.4 What to Expect from a Committee Ballot

The Committee Ballot is conducted once the document has reached a point where the committee needs to determine if it is ready to move forward to the next stage. By conducting the committee ballot, the committee agrees as a whole to "sign off" on the document. Below is a sequence for the committee ballot:

- **Roster Review:** Chair, Vice-Chair and HI staff review roster for quorum count
- **PDF of Document:** HI Staff will convert the document in PDF and include balloting instructions
- **Email Launch:** HI staff will send the PDF of the document and the committee roster to all participants within the ballot (members and alternates of a company) and the Director, Technical Affairs.
- **Ballot Window:** The committee typically does not meet during this time.
- **Committee Ballot Comment Review Kickoff Meeting:** Chair, Vice-Chair and HI staff to review ballot comments and determine path forward for committee review.
- **Comment Review and Disposition:** In meetings with a quorum present, comments are to be reviewed and dispositioned.

  NOTE: HI staff, along with committee leadership, is responsible for setting expectations of the committee ballot including timeline, commenting process, and the look of the document. While it is best practice for HI staff to prepare an orderly document for review, there may be formatting inconsistencies (margins, font size, etc.) since copy editing and desktop publishing work have not yet been done.

7.3.4.1 A Note on Colleague Support for Committee Ballot

When the ballot is sent out to the voting committee member, that member may provide a copy of the document to fellow employees (please do not distribute this document outside your organization unless permission is granted from the HI Technical Director) for their review and comment. The draft will need to be downloaded to your computer and provide via email attachment. All comments shall be consolidated into a single document and submitted to HI through the voting member, using the appropriate commenting methods.

7.3.5 What to Expect from a SVR Ballot

At the conclusion of the committee ballot comment review, the document typically undergoes its first round of desktop publishing. The next level of internal voting is for HI members' SVRs. Each company has the option of participating on a section-by-section basis. HI has five sections (rotodynamic, reciprocating, rotary, air operated, controlled volume metering, and systems section) that a member company can assign an SVR. The HI policy – 'one company (parent company/division/partner), one vote' applies. Should more than one section be represented within a particular standard and there are different individuals representing those sections from the same company, those individuals will be contacted so that an internal decision may be made as to which one will be participating in this particular SVR ballot.

SVRs are not required to participate on the committee in order to review the document. That said, it is not uncommon for a committee member to also the SVR or ASVR for a company and thus get to ballot on the document more than once.

The process and requirements for reviewing and casting a vote is the same as when conducting a Committee Ballot. Below is a sequence for the SVR ballot:

- **SVR/ASVR Roster Review:** HI staff review report on SVR/ASVR to ensure accuracy and duplicates are removed.
- **PDF of Document:** HI Staff will convert the updated document in PDF and include balloting instructions.
- **Email Launch:** HI staff will send the PDF of the document to the SVR/ASVR list and the Director, Technical Affairs via email.
- **Ballot Window:** The committee typically does not meet during this time.
- **SVR Ballot Comment Review Kickoff Meeting:** Chair, Vice-Chair and HI staff review ballot comments and determine path forward for review.
- **Comment Review and Disposition:** In meetings with a quorum present, comments are to be reviewed and dispositioned.

    NOTE: HI staff, along with committee leadership, is responsible for setting expectations of the SVR ballot including timeline, commenting process, and the look of the document. While the document has gone through some desktop publishing work, there may be some formatting inconsistencies

(size of images, orientation of tables, etc.) that remain. Grammatical errors could exist as copy editing has not yet been completed at this stage in the document development process.

7.3.6 What to Expect from a Consensus Committee (ANSI Canvass) Ballot

The Consensus Committee (ANSI Canvass) Ballot is different from the two previous ballots in that it incorporates non-HI members into the review process. There are three categories of voters – Producers, Users, and General Interest. No one group may represent more than 50% of the total to achieve balance. One of ANSI's key tenets for consensus balloting is a fair representation of the market place and the public.

The Consensus Committee Ballot period is 30 calendar days. At same time as this ballot, Notice is provided to ANSI so they can announce a 45-day public review.

The procedure and requirements for reviewing/voting remains the same as used for the Committee and SVR balloting. The substantive comments received during the Consensus Committee (ANSI Canvass) ballot are reviewed and dispositioned by the HI committee. Once negative ballots, if any, have been resolved to the best of HI's ability, the negative voter(s) will be sent a notification indicating the resolution along with the opportunity to re-cast their ballot. At this time, a Notice of Appeal is also provided to the negative voter as directed by ANSI *Essential Requirements.* The timeframe for reviewing/re-casting their ballot is 30 days. Once resolution has been received or the timeframe has ended, the document will be sent back to the desktop publisher for final editing.

Should any of the canvass ballot comments necessitate a substantive change to the document, portion of the document including the substantive change(s) will go through a recirculation ballot and public review. The timeframe for this recirculation ballot is 14-30 calendar days and will be sent to all participants of the canvass list. If the substantive change is less than 5 pages, the timeframe for a public review is 30 calendar days. If the substantive change is more than 5 pages, the timeframe for a public review is 45 calendar days.

Once the recirculation ballot has closed, HI Staff will tabulate the responses to ensure that quorum was reached, and no additional negative votes have arisen. Any comments received because of the recirculation ballot will be handled in the same manner as described above.

Once all canvass ballot comments have been dispositioned without additional substantive change, HI Staff moves the document to desktop publishing and works with Chair to ensure proper implementation prior to final publication.

7.3.7 What to Expect from a Peer Review

For HI standards and guidelines that do not go through the process of ANSI approval, a review of the document from those outside the committee is an important stage of the credibility of standards and guidelines. A peer reviewer includes, but is not limited to, customers of member companies or others working in the pump industry, subject matter experts, co-workers within a member company who have

not been involved with the draft development or who are not the Standards Voting Representative for a member company, etc.

Committee members are requested to submit nominations for peer reviewers. A reviewer is given 30 calendar days to review the document and provide feedback. A peer review can be done at the same time as an SVR ballot. The reviewer does not have a voting right – only to provide comments on the content of the document. Once the feedback is provided, the committee addresses all feedback. The document then proceeds with desktop publishing and professional copy editing.

7.4 Final Publication Production Processes: Desktop Publishing and Copy Editing

7.4.1 What happens to prepare a document for publication?

It is a standard process to submit *most* HI publications through desktop publishing and copy editing prior to publication. This process ensures proper layout formatting and grammatical accuracy of the final product.

- **Desktop publishing** (the document layout process) typically occurs after the committee ballot comment disposition is complete. This process prepares the document for the SVR ballot, ANSI canvass, and peer review. HI staff, along with committee leadership, should set expectations on the layout and format of the document prior to each ballot so reviewers are prepared.
- **Copy editing** (the review of language for grammatical accuracy) typically occurs *after* the completion of the final ballot *and* preliminary desktop publishing work.

To ensure HI publications are consistent, HI staff, HI Committees, and respective vendors are provided with the HI Style Guide. HI copy editors are instructed to follow the 17th edition of The Chicago Manual of Style.

NOTE: Free products (such as white papers and program guidelines) are not typically run through this process. Instead, these publications are formatted by HI staff and run through free grammar software.

7.4.2 How Committee Leadership Can Participate in Preparing a Document for Publication

7.4.2.1 Reviewing Implementation of Comments

According to Section 4.2.1 Production Timelines, a document has designated blocks of time for rounds of desktop publication work. The largest of these blocks occurs after the conclusion of the final round of comment disposition. At this point, the committee members and alternates are no longer actively participating in the production of the document.

While the document is being prepared, the committee leadership is invited to review the work of the desktop publisher and copy editor. While this is not required of the committee leadership, it is

encouraged. During this review, the committee leadership can 1) check the implementation of dispositioned comments to ensure the intended changes were made and 2) note editorial inconsistencies. The document is not open for additional technical content or comments for revision. Should the leadership have such comments, the suggestion(s) can be saved by HI staff for future revisions of the committee.

NOTE: If there is a technical issue uncovered by the committee leadership, HI staff are responsible for determining the cause of the error.

4. If the technical error came from the desktop publisher not implementing guidance correctly, the resolution is to mark-up the document and make the change.
5. If the technical error was missed by the committee during balloting, an addendum should be conducted. See Section 4.2.3 for additional guidance on this process.

7.4.2.2 Forewords for Guidebooks

For guidebooks, the committee leadership is responsible for drafting the foreword of the publication. HI staff provide examples from previous guidebook publications. The foreword introduces the topic to the reader by outlining the importance and relevance to the pump industry. A summary of the foreword is often used for the back of the cover art of this publication type.

8. FAQ about HI Committees

8.1 What happens when a chair leaves?

See section 5.3.2 Unexpected Changes in Leadership

8.2 What happens when an active participant leaves HI membership?

When a company leaves HI, employees from that company are no longer eligible for committee participation. The Chair and HI staff should write down a list of responsibilities held that by the individual and reassign as needed.

Keep formerly active participants in mind when considering candidates for peer review

8.3 How do I access forms? (NWIP/ Permission for Image/ etc.)

It is best practice to ask HI staff for the most current NWIP or Permissions form.

8.4 How do I access Teams?

[Click here](#) to learn more about accessing teams on your Teams App.

8.5 I am new to HI, how do I get involved?

Send an email to HITechnical@pumps.org and ask what committees are currently seeking members.

8.6 I can no longer support HI committee work because of my work schedule but want to remain informed. What do I do?

You can always voluntarily opt to become an "information only" designation on a committee. This will keep you in the loop for emails, committee ballot, and comment disposition. Additionally, stay connected with our newsletter and follow us on LinkedIn.

8.7 Am I eligible for professional development hours (PDH)?

Yes. Committee leaders are eligible for receiving PDH certificates for developing publications and educational content.

For a 1-hour unit of training, the PDH will read 2-hours.

For publications, the PDH may vary. If you are interested, please contact HITechnical@pumps.org and HI staff will determine the appropriate amount of PDH to issue.

9. Exhibits

Exhibit 1: New Work Item Proposal

Title of deliverable	
Proposed by	
Contact Information	
Date	
Governing Section	

Please indicate the proposed publication type:
 	
 a)   American National Standard
 	
               Normative standard
 	
               Informative guideline
 	
 b)   HI standard
 	
 c)   HI guideline
 	
 d)   Guidebook
 	
 e)   Technical white paper
 	
 f) Education	

Purpose of the committee	
Scope of document	

Proposed outline & main content of document	

Market Case

Importance – Indicate which of these drivers apply

Rank	Affiliation	Driver	Indicate or Comment
A	Strategic	BOD Strategic Plan	
B	Government Affairs	Regulatory	
C	Technical Affairs	National Standards	
D	PSM and ESC	Education	
E	Member Service	Required by Members	
F	Technical Affairs	Liaison	

Urgency – Indication of the need to complete

		Driver	Indicate or Comment
1	Regulatory Timetable	Regulatory- Legislation	
1	ANSI Timetable	National Standards	
2	HI Timetable	Liaison - Education	
2	Budgetary Timetable	Cash Flow - Revenue Targets -	

Demand – Based on knowledge of the Market -

		Driver	Indicate
	Specification	Customer - Specifier - Standards body	

	Best Practice	Customer - Specifier - Standards body	
	Guideline	Customer - Members - Affiliation	
	Education Module	Customer - Members - Affiliation	

Resources – Identification of work group participants

	Technical Affairs		Indicate names
		Section Leader	
		Available HI Staffing	
		Subject Matter Experts	
	Government Affairs		
		Section Leader	
		Available HI Staffing	
		Subject Matter Experts	
	Education Affairs		Indicate names
		Section Leader	
		Available HI Staffing	
		Subject Matter Experts	

Exhibit 2: Organizational Chart of Technical Affairs

Hydraulic Institute — Technical Affairs Organization Chart. Updated: October 8, 2025
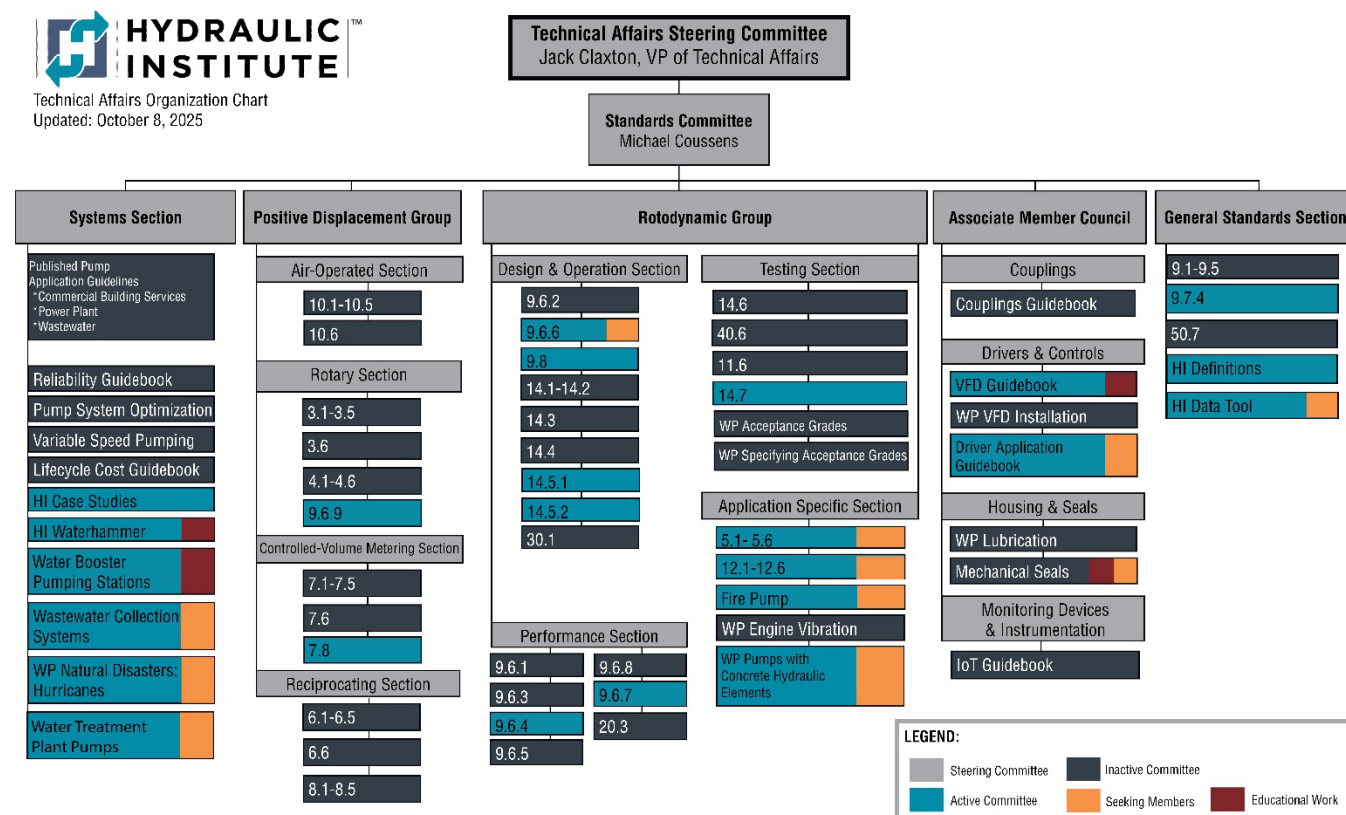
Exhibit 3: Hydraulic Institute Antitrust Policy

The Hydraulic Institute is a trade association of pump manufacturers and suppliers in North America. As an industry organization the Hydraulic Institute serves a legitimate and useful purpose, and may legally engage in a wide variety of activities which serve the industry — so long as they do not violate antitrust laws. Antitrust considerations require that Institute activities be structured so as to promote competition and the Institute must refrain from any activity that might be construed as unlawfully limiting competition among its members or with nonmembers of the Institute.

There are activities which the Institute can and should undertake which might later become illegal if they transform into devices for violating the antitrust laws. Because of the difficulty of determining what activities might become violations of antitrust, the following guidelines are presented so that no member of the Institute Staff, representative of an Institute member, or Institute committee member will knowingly or willfully further any questionable activity under the umbrella of the Institute.

Representatives of members of the Institute and committee members should know enough about antitrust laws to be able to avoid doing or discussing things in their work for or with the Institute that might raise questions. Representatives of Institute members, whether they be voting or non-voting, are urged to avoid not only actual violations of the law, but also any appearance of violation that might

invite suspicion or investigation on the part of the enforcement authorities. A reasonable amount of common sense and good judgment must be used by those who serve the Institute, so that no risk will be created of violations of law. To protect the Institute, its members and non-members who participate in Institute activities, the Institute has adopted and observes several basic policies:

- The Institute has well-defined, constructive objectives and activities as set forth in its Constitution and By-Laws. Institute programs and activities are designed to promote the over-all interests of the industry and the public.
- Any activities concerned with pricing or unlawful marketing practices are scrupulously avoided.
- The Institute maintains various procedural safeguards relating to its programs for promulgation of standards, its dissemination of industry statistics and the operations of all Sections and committees, among others.
- The Institute retains a General Counsel to assist the Institute staff to ensure full observance of all Institute policies and to provide guidance and protective advice as to all Institute operations from an antitrust standpoint.

Antitrust Laws in General:

Antitrust laws are not intended to inhibit legitimate business activity. Their objective is to help preserve a free economy by encouraging competition in the marketplace. They outlaw artificial restraints on competition. The laws are maintained because certain unlawful business practices can threaten to distort the marketplace. Most experts believe that if these laws should fail to do their main job, they might be replaced by a much more inflexible system of government regulation and controls over business. Antitrust suits fall into several categories:

1. Those aimed at prohibiting conspiracies, such as those to fix prices, that are subject to criminal actions. They prohibit contracts, combinations or conspiracies in restraint of trade or commerce. They include agreements of all kinds, whether written or oral, formal or informal, which restrain competition. Some of these restraints are deemed unreasonable per se, including those which have the purpose or effect of fixing prices, limiting production, allocating markets, or boycotting third parties.
2. Those aimed at prohibiting "monopolization" of any part of trade or commerce. Their main thrust is to prevent a single company from acquiring or holding sufficient power to control prices or to foreclose access to the market.
3. Those aimed at prohibiting "unfair methods of competition" and "unfair or deceptive acts or practices" in commerce. This includes various forms of "unfair" business conduct such as false advertising.
4. Specific forms of business restraints such as exclusive dealing and "tie-in" sales, acquisitions and mergers and interlocking directorships.
5. Those aimed at prohibiting discriminations in prices or services which have anticompetitive effects.

Activities to be Avoided:

To avoid possible problems, the following "don'ts" should be kept in mind by all Institute Staff, representatives of Institute members, and committee members when meeting for Institute activities:

DON'T agree with your competitors or anyone else:

a. to fix the prices of products or their conditions of sale;
b. to limit your production, fix production quotas, or otherwise limit the supply of any product reaching the market;
c. to divide up any market, either geographically or by class of customer; or
d. to blacklist or boycott customers, competitors or suppliers.

DON'T discuss or exchange information with your competitors on any subject relating to the "per se" restraints mentioned above. For example, don't have formal or informal discussions on the following:

a. individual company prices, price changes, terms of sales, etc.;
b. industry pricing policies, price levels, price changes, etc.;
c. price differentials, price mark-ups, discounts, allowances, credit terms;
d. costs of production or distribution, cost accounting formulas, methods of computing costs;
e. individual company figures on costs, production, inventories, sales, etc.;
f. information as to future plans of individual companies concerning the design, production, distribution or marketing of particular products including proposed territories or customers; or
g. matters relating to individual suppliers or customers, particularly in respect to any action that might have the effect of excluding them from a market.

DON'T meet in "rump" sessions to discuss matters relating to any of the above. If such a discussion starts, leave the room and ask that it be noted in the minutes of the meeting that you objected to the discussion and left the meeting for that reason.

The above comments are intended as guidelines and not as rules. Every individual must use his or her own judgment in activities relating to the Institute. If ever there is doubt in your mind regarding the legality of an activity or discussion — if there is a question in your mind that you might be violating the antitrust laws — discuss the matter with your corporate legal counsel or with the Institute's staff and legal counsel before proceeding.

Exhibit 4: Hydraulic Institute Export Control and Sanction Laws

HI encourages all participants in its meetings to be aware of U.S. export control and sanctions laws relating to transfers of know how. Certain information related to developing, producing, and even using certain types of pumps and associated equipment is controlled for export from the United States. That information may also require an export license before it is shared with certain non-U.S. persons within the United States. Before discussing export-controlled information, each person is individually responsible for ensuring that the audience is authorized to hear that information.

The above comments are intended as guidelines and not as rules. Every individual must use his or her own judgment in activities relating to the Institute. If ever there is doubt in your mind regarding the legality of an activity or discussion — if there is a question in your mind that you might be violating the antitrust laws — discuss the matter with your corporate legal counsel or with the Institute's staff and legal counsel before proceeding.

Exhibit 5: Example of a Committee Meeting Agenda

AGENDA

Hydraulic Institute
ANSI/HI 14.5.2 Guideline for Fundamentals of Installation and Start-up of General Purpose Rotodynamic Pumps
Wednesday, June 22, 2022
3:45 p.m. – 5:30 p.m.

1. Welcome / Roll Call / Roster ....P. Ruzicka/ HI Staff

2. Call for Members...HI Staff

3. Review / Approve Minutes of March 2022 ....All Attendees

4. Review / Update Purpose, Scope, and Deliverables .... C. Zentic

5. Review of Anti-Trust Statement ....HI Staff

6. Review the definition of "General Purpose Pumps" .... C. Zentic

7. Workgroup Breakout ....All Attendees
   a. Group A Report
      • 14.5.2.5
         1. Mounting pump and Driver
         2. Special Considerations for Vertical Pumps
   b. Group B Report (C. Burrows)
      • 14.5.2.10 Piping Connections
   c. Group C Report (C. Zentic)
      • 14.5.2.22 Troubleshooting

8. Review of Workgroup Breakout ....All Attendees

9. New Business ....All Attendees

10. Meeting Critique..All Attendees

11. Next Meeting: October 24-27, 2022 – Savannah, GA ....HI Staff
    a. Identify Agenda Topics
    b. Identify Action Items: Who, What, When
    c. Meeting Time Required
    d. Schedule of Interim Teleconferences

12. Adjournment... C. Zentic/ HI Staff

Exhibit 6: Hydraulic Institute Minutes and Action Items Policy

It is the intent of the HI Board of Directors and HI staff that minutes of HI meetings be issued promptly following each meeting. Minutes shall be distributed within four weeks following the conclusion of an event (Annual, Spring, or Fall meeting or teleconference).

It is recognized that HI staff members have multiple committee responsibilities and, additionally, have action items or assignments made during meeting that often require attention and immediate action following meetings. It is further recognized that during some HI meetings that as many as 25 different committees meet and the associated work burden – with other HI staff responsibilities – is extensive.

Therefore, to ensure that this policy will work, HI committees shall not impose upon staff nor shall staff agree to assume assignments that require action within two weeks following a meeting. In this manner HI staff will work, immediately following meetings, to draft, seek approval from Chairs and HI legal counsel and issue minutes in a timely manner. Committees using the HI-web-based collaboration tool, however, will be able to post documents for volunteer member action or comment during this period – as minimal staff intervention is required.

Minutes and associated action items shall be issued by HI staff to Chairs for approval within two weeks following any HI meeting by HI staff and distributed no later than four weeks following a meeting/event upon approval by Chairs and legal counsel.

HI committee chairs and legal counsel shall have two weeks to approve minutes following receipt. Draft minutes shall be issued to chairs and HI legal counsel contemporaneously. If no response is received by HI staff after one week reminder notices will be issued. If staff receives revisions of substance (beyond editorial) from the chair, then minutes shall be re-issued to HI legal counsel for re-consideration. Minutes, however, seldom require more than editorial revisions during the approval process.

If approval is not received from a committee chair or legal counsel within two weeks, staff is authorized to issue minutes. Minutes are always reviewed and approved by a committee at a subsequent meeting, allowing for any revisions required.

Volunteers Sought: In order to assist HI staff in recording minutes, and issuing them promptly following a meeting, it is suggested that the Vice Chairman of each committee assume a role of also taking notes, recording action items and issuing these to the responsible staff member either at the conclusion of the meeting in electronic form or no later than one week following the meeting. This practice (drafting committee) works well in ISO committees and Work Groups. An appropriate role and responsibility for Vice Chairs would be for follow-up with committee members and staff on accomplishment of their action items.

Minutes will continue to be issued in electronic form via e-mail, or for those committees using the HI web-based collaboration tool, will be posted to the appropriate committee section of this site for electronic distribution and/or access.

Approved by HI Board of Directors: October 24, 2004

Exhibit 7: Example Language for Committee Ballot Email

Subject: HI: IoT Committee Ballot Launch 9.15. Due 10.14

To: HI IoT Guidebook Voting Committee Members
Subject: Committee Ballot of Internet of Things Solutions for Pumping Systems

Summary: The committee has developed a guidebook to engage, educate and establish an ECO system for all the stakeholders in the pumping industry that are on the roadmap of digitization while providing clarity to the world of IoT/IIoT/IoE. This is a new publication.

Instructions: This ballot is for formally voting on whether or not you concur with the proposed draft of the subject guidebook. Please indicate your vote by clicking the checkbox next to one of the voting options shown below. If you have comments, please follow the attached commenting instructions and attach the file in your reply. You must provide reasons for a negative vote. Please return your ballot by replying to this email as soon as possible, but no later than **October 14, 2022** to the attention of Amy Sisto at HITechnical@pumps.org. The committee roster is attached to this email. Ballot responses are requested from the Chair, Vice-Chair and Members. Alternate members and others listed are welcome to provide comment along with their Member representative or separately, but cannot vote on this ballot. However, if a Member does not vote, then the Alternate Member can vote on the Member's behalf and their vote will count towards the approval of the draft standard.

Question: Do you approve of the proposed revisions to HI IoT Guidebook as shown in the proposed draft? Select one of the following options:

- Affirmative – document is acceptable as written and ready for publication.
- Affirmative w/ Comment(s) – document is acceptable following committee consideration of comments.
- Negative w/ Comment(s) – document is unacceptable and requires substantive revision before publication. For negative vote, balloter must indicate was comment(s) or reason(s) that result in the document being unacceptable.
- Abstain – unable to vote affirmative or negative because of time constraints or lack of technical expertise.

Thank you for participating in this committee ballot. Please let me know if you have any questions.

Exhibit 8: Hydraulic Institute Policy on Plagiarism and Artificial Intelligence Use

Pending HI Board of Directors Review – January 2026

Exhibit 8.1 Plagiarism in Content Generation and Creation

Plagiarism Policy

The Hydraulic Institute (HI) defines plagiarism as the use of published processes, results, or words without explicitly acknowledging the original author and source. The act of plagiarizing means to present as new and original an idea or product derived from an existing source or to otherwise file to properly acknowledge the original source.

All HI Members, Partners and Contributors to HI Publications, Documents and Resources need to recognize that plagiarism in any form, at any level, is unacceptable and is considered a serious breach of professional conduct, with potentially severe ethical and legal consequences.

To avoid this issue all HI Members, Partners and Contributors should, when working on assignments and action items, retain a list of all reference materials used to complete their work. All verbatim text or borrowing of ideas or information will need to be cited appropriately and advanced notification and permission may be required.

Any suspected acts of plagiarism should be immediately brought to the attention of HI's Director, Technical Affairs.

Note on Generative Artificial Intelligence

Content derived from generative artificial intelligence (AI) is not considered a new or original idea but is a published source that cannot be referenced. Therefore, the use of AI tools, such as ChatGPT (or equivalent), for generating content to be placed within an HI publication would violate the plagiarism policy noted above.

The use of AI tools for editing and grammar enhancement is common practice and, as such, is outside the intent of the plagiarism policy. To the extent you are unsure whether use of AI tools is within the scope of the plagiarism policy, you should err on the side of disclosing the use of such tools and confirming with HI's Director, Technical Affairs.

Exhibit 9: Guiding Principles – Selection of Committee Leadership

Selection of Committee Chair

Nominees for committee chair are solicited by the Standards Committee when an opening arises, or during the New Work Item Proposal (NWIP) process. The Standards Committee is responsible for

approving the committee chair. In selecting a committee chair, the Standards Committee will adhere to the following guidance.

1. **General Guidance for committee chair selection:**
   a. The Standards Committee shall make the selection based on the expertise of the nominee(s), their past participation, and future availability
   b. The Standards Committee shall not consider, age, race, gender, or any other protected group status in the selection of the committee chair
2. **Committee specific guidance for committee chair selection:**
   a. A representative from an HI member company engaged in pump manufacturing is preferred for chair positions on committees producing documents related to pump design, pump testing, and pump performance. No such preference applies to chair positions on committees producing documents not related to pump design, pump testing and pump performance, nor to vice-chair positions on any committees.

Listing of committees which guidance applies:

Positive Displacement Pump Group

- 3.1-3.5 – Rotary pumps
- 3.6 – Rotary Pump Test
- 4.1– 4.6 – Magnetic Driven Rotary Pumps
- 6.1– 6.5 – Reciprocating Power Pumps
- 6.6 – Reciprocating Pump Tests
- 8.1 – 8.5 – Direct Acting (Steam) Pumps
- 7.1-7.5 – Controlled Volume Metering Pumps
- 7.6 – Controlled Volume Metering Pump Tests
- 10.1-10.5 – Air Operated Pumps
- 10.6 – Air Operated Pump Test

Rotodynamic Pump Group

- 14.3 – Design & Application
- OH1 Specification
- 9.6.1 – NPSH Margin
- 9.6.2 – Assessment of applied nozzle loads
- 9.6.3 – Operating Regions
- 9.6.4 – Vibration
- 20.3 – Pump Efficiency Prediction
- 14.6 – Acceptance Tests
- 40.6 – DOE Test
- 14.7 – Field Test
- 5.1-5.6 – Sealless Pumps
- 12.1-12.6 – Slurry Pumps
- Fire Pump

Selection of Committee Vice-Chair

The Committee Chair is responsible for selecting the Committee Vice-Chair adhering to the following guidance.

Guidance for committee vice-chair selection:
   a. It is customary for the Chair to advise the committee of the opening, and the current nominee(s), and see if there are others that are also interested to be considered for the role prior to selecting the new vice-chair.
   b. The chair shall make the selection based on the expertise of the nominee(s), their past participation, and future availability
   c. The chair shall not consider, age, race, gender, or any other protected group status in the selection the selection of the vice-chair
   d. The new vice-chair should not be filled by someone form the same member/partner company or parent company affiliation as the chair

Exhibit 10: Policy for Remote Participation at an HI Meeting

The Hydraulic Institute provides members with a variety of opportunities to participate with their industry colleagues in meetings hosted by the Institute throughout the year. These meetings offer members unique opportunities for networking, education and participation in the development of pump industry standards. HI meetings are intended and designed for in-person participation and, in general, requests to participate remotely cannot be honored.

On occasion, requests for exceptions to this policy will be considered on a case-by-case basis and are limited to: medical conditions, adverse weather prohibiting travel, and other extenuating circumstances restricting travel to a meeting. Requests will only be considered for the respective Committee Chair, Vice-Chair, Co-Chair or Subcommittee Leaders who have a history of regular onsite participation. Requests will be denied if an alternate Committee Leader will be in attendance to administer the onsite meeting. Other committee members will be considered if an additional member is needed to constitute a quorum.

Overall remote participation is contingent on the technological capabilities while on site.

Requests shall be submitted in writing and reviewed by HI staff. A response will be provided within five (5) business days. If a request meets the requirements stated here in, HI will provide the necessary technology to establish remote access provided it is available at the event venue (i.e. WebEx, conference/speaker phone, phone line, etc.). It is the responsibility of the approved remote participant to ensure availability of required software and technology needed to connect.