

ASME AG-1–2019
(Revision of ASME AG-1–2017)

Code on Nuclear Air and Gas Treatment

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

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FOREWORD

In 1971, the ANSI N45.8 Committee was organized to develop standards for high reliability air cleaning equipment for nuclear facilities and corresponding tests to confirm performance of the equipment. Two standards, ASME N509 and ASME N510, were published in 1975 and 1976.

In 1976, under the accredited organization rules, the Committee was reorganized as the ASME Committee on Nuclear Air and Gas Treatment. The scope of responsibility increased to include the development of codes and standards for design, fabrication, inspection, and testing of air cleaning and conditioning components and appurtenances used in safety-related systems in nuclear facilities. ASME AG-1, approved by the American National Standards Institute (ANSI) on April 30, 1985 and issued on February 28, 1986, was the new Code resulting from the increased scope. The first revised edition was approved by ANSI on May 22, 2017.

This Code contains mandatory requirements, specific prohibitions, and nonmandatory guidance for construction activities. Construction, as used in this Foreword, is an all-inclusive term relating to material, design, fabrication, inspection, testing, and certification. The Code does not address all aspects of these activities and those not specifically addressed may be considered. The Code is neither a handbook nor a replacement for education, experience, and the use of engineering judgment. The phrase “engineering judgment” refers to technical judgments made by knowledgeable designers experienced in the application of the Code. Engineering judgments must be consistent with Code philosophy and such judgments shall never be used to overrule mandatory requirements or specific prohibitions of the Code. The user is cautioned to carefully review these Code requirements for suitability to specific applications other than nuclear power and nuclear fuel cycle facilities.

The Code requirements established by the Committee shall not be interpreted as approving, recommending, or endorsing any proprietary design.

The Committee on Nuclear Air and Gas Treatment meets regularly to consider revisions of the Code requirements, new Code requirements as dictated by technological development, Code Cases, and requests for interpretations. Only the Committee on Nuclear Air and Gas Treatment has the authority to provide official interpretations of this Code. Requests for revisions, new Code requirements, Code Cases, or interpretations shall be addressed to the Secretary in writing and shall give full particulars in order to receive consideration and action. (See the [Correspondence With the Committee](#) page.)

This edition of ASME AG-1 was approved by ANSI on August 8, 2019, and issued on January 17, 2020. The requirements of this Standard take effect upon its issue date.

ASME COMMITTEE ON NUCLEAR AIR AND GAS TREATMENT

(The following is the roster of the Committee at the time of approval of this Code.)

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M. R. Hahn , U.S. Department of Energy	A. M. Kouvolos , <i>Contributing Member</i> , Consultant

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	T. J. Vogan , Sargent & Lundy
	N. S. Zaremba , Newport News Shipbuilding

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C. Golden , Whirlpool Corp.	R. Porco , RDP Consulting Services
L. J. Klaes , Consultant	R. R. Weidler , Consultant

SUBCOMMITTEE ON ADSORPTION

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R. K. Aggarwal, Sargent & Lundy, LLC
R. R. Bellamy, Camfil USA, Inc.
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C. E. Graves, NUCON International, Inc.

R. T. Jubin, Oak Ridge National Laboratory
L. J. Rudenas, Australian Nuclear Science and Technology Organisation
C. B. Summers, NUCON International, Inc.
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D. Gibbs, *Contributing Member*, Camfil USA, Inc.
B. Valentin, *Contributing Member*, SGT, Inc./NASA Goddard Space Flight Center

SUBCOMMITTEE ON COMMON EQUIPMENT

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J. M. Apablaza-Lorca, Washington River Protection Solutions
T. B. Axley, Jr., North Wind Group
R. Flye, Consultant
D. Gibbs, Camfil USA, Inc.
R. Giberson, Clayton Associates, Inc.
N. Handschke, Camfil USA, Inc.
Z. Hostetler, SSM Industries
S. Khabir, Washington River Protection Solutions/Hanford
D. S. Maletich, The New York Blower Co.

C. Massar, Ruskin Co.
J. B. Roberts, National Security Technologies, LLC
J. C. Royer, Sargent & Lundy, LLC
A. Soma, Camfil USA, Inc.
M. T. Sorna, Puget Sound Naval Shipyard
T. Wander, AAF International
W. H. Lampkin, *Contributing Member*, Greenheck Fan Corp.
D. Schoepflin, *Contributing Member*, Pacific Northwest National Laboratory
G. D. Singleton, *Contributing Member*, AAF International

SUBCOMMITTEE ON FILTRATION

H. A. Mearns, *Chair*, U.S. Army Combat Capabilities Development Command Chemical Biological Center
A. Stillo, *Vice Chair*, Camfil USA, Inc.
D. J. Adamson, Savannah River National Laboratory
W. Bergman, Aerosol Science
H. Cho, Mississippi State University
S. Dinakaran, AAF Flanders
D. M. Dykes, Consultant
G. Garcia, Bechtel National, Inc.
M. R. Hahn, U.S. Department of Energy
N. Handschke, Camfil USA, Inc.
C. A. Hart, Air Techniques International Test Laboratory
S. Khabir, Washington River Protection Solutions/Hanford
J. Levinson, BWX Technologies, Inc.
L. E. Major, Lydall
M. A. Mitchell, Lawrence Livermore National Laboratory
G. W. Moore, Camfil USA, Inc.

D. P. Nguyen, U.S. Army Edgewood Chemical Biological Center
G. G. Pyle, Knolls Atomic Power Laboratory
C. I. Ricketts, Engineering Services Company, LLC
K. L. Rubow, Mott Corp.
L. J. Rudenas, ANSTO
S. Salisbury, Los Alamos National Laboratory
M. T. Sorna, Puget Sound Naval Shipyard
J. A. Stormo, Mississippi State University — Institute for Clean Energy Technology
C. A. Waggoner, Mississippi State University — Institute for Clean Energy Technology
N. S. Zaremba, Newport News Shipbuilding
J. S. MacMurray, *Contributing Member*, Savannah River National Laboratory
D. Schoepflin, *Contributing Member*, Pacific Northwest National Laboratory
L. D. Weber, *Contributing Member*, Stony Brook University

PROJECT TEAM ON SECTION FA: MOISTURE SEPARATORS

M. A. Doersam, *Chair*, Ellis & Watts Global Industries, Inc.
G. Dalton, Bechtel National, Inc.
S. Khabir, Washington River Protection Solutions/Hanford

H. A. Mearns, U.S. Army Combat Capabilities Development Command Chemical Biological Center
C. I. Ricketts, Engineering Services Company, LLC

PROJECT TEAM ON SECTION FC: HEPA FILTERS

A. Stillo, *Chair*, Camfil USA, Inc.
H. A. Mearns, *Vice Chair*, U.S. Army Combat Capabilities Development Command Chemical Biological Center
D. J. Adamson, Savannah River National Laboratory
B. M. Baker, SciTech Services, Inc.
S. Barnette, U.S. Department of Energy
H. Cho, Mississippi State University
S. Dinakaran, AAF Flanders
D. M. Dykes, Consultant
C. Fosseen, Newport News Shipbuilding
N. Galante, AAF International
G. Garcia, Bechtel National, Inc.
M. R. Hahn, U.S. Department of Energy
N. Handschke, Camfil USA, Inc.
C. A. Hart, Air Techniques International Laboratory
S. Khabir, Washington River Protection Solutions/Hanford
J. R. Kriskovich, Kurion, Inc.
J. Levinson, BWX Technologies, Inc.
L. E. Major, Lydall
E. McCormick, Washington Department of Health, Radioactive Air Emissions
J. C. Medley, Nevada National Security Site
G. W. Moore, Camfil USA, Inc.
J. Nagengast, Lawrence Livermore National Laboratory
D. P. Nguyen, U.S. Army Edgewood Chemical Biological Center
G. G. Pyle, Knolls Atomic Power Laboratory
C. I. Ricketts, Engineering Services Company, LLC
S. Salisbury, Los Alamos National Laboratory
D. Schoepflin, Pacific Northwest National Laboratory
M. T. Sorna, Puget Sound Naval Shipyard
J. A. Stormo, Mississippi State University — Institute for Clean Energy Technology
C. A. Waggoner, Mississippi State University — Institute for Clean Energy Technology
T. Wander, AAF International
J. Webb, Y-12 National Security Complex
N. S. Zaremba, Newport News Shipbuilding
J. S. MacMurray, *Contributing Member*, Savannah River National Laboratory

PROJECT TEAM ON SECTION FI: METAL MEDIUM FILTERS

H. Cho, *Chair*, Mississippi State University
D. J. Adamson, Savannah River National Laboratory
M. Bauer, Westinghouse Electric Germany GmbH
W. Bergman, Aerosol Science
C. B. Chadwick, Microfiltrex Ltd
E. Duvekot, Porvair Filtration Group, Inc.
C. A. Hart, Air Techniques International Test Laboratory
D. Klein, AREVA NP, Inc.
K. G. Nelson, Porvair Filtration Group, Inc.
D. P. Nguyen, U.S. Army Edgewood Chemical Biological Center
K. L. Rubow, Mott Corp.
S. Salisbury, Los Alamos National Laboratory
J. R. Shultz, U.S. Department of Energy
A. Stillo, Camfil USA, Inc.
J. A. Stormo, Mississippi State University – Institute for Clean Energy Technology
C. A. Waggoner, Mississippi State University – Institute for Clean Energy Technology

PROJECT TEAM ON SECTION FK: SPECIAL HEPA FILTERS

G. W. Moore, *Chair*, Camfil USA, Inc.
N. S. Zaremba, *Vice Chair*, Newport News Shipbuilding
B. M. Baker, SciTech Services, Inc.
S. Barnette, U.S. Department of Energy
P. Basile, Clayton Associates, Inc.
H. Cho, Mississippi State University
G. Dalton, Bechtel National, Inc.
S. Dinakaran, AAF Flanders
E. Duvekot, Porvair Filtration Group, Inc.
D. M. Dykes, Consultant
C. Fosseen, Newport News Shipbuilding
G. Garcia, Bechtel National, Inc.
R. Giberson, Clayton Associates, Inc.
M. R. Hahn, U.S. Department of Energy
C. A. Hart, Air Techniques International Test Laboratory
Z. Hostetler, SSM Industries
S. Khabir, Washington River Protection Solutions/Hanford
J. R. Kriskovich, Kurion, Inc.
J. Levinson, BWX Technologies, Inc.
L. E. Major, Lydall
E. McCormick, Washington State Department of Health, Radioactive Air Emissions
H. A. Mearns, U.S. Army Combat Capabilities Development Command Chemical Biological Center
K. G. Nelson, Porvair Filtration Group, Inc.
D. P. Nguyen, U.S. Army Edgewood Chemical Biological Center
G. G. Pyle, Knolls Atomic Power Laboratory
C. I. Ricketts, Engineering Services Company, LLC
S. Salisbury, Los Alamos National Laboratory
J. R. Shultz, U.S. Department of Energy
M. T. Sorna, Puget Sound Naval Shipyard
A. Stillo, Camfil USA, Inc.
J. A. Stormo, Mississippi State University — Institute for Clean Energy Technology
B. Swinnerton, Sellafield Ltd
C. A. Waggoner, Mississippi State University — Institute for Clean Energy Technology
J. Webb, Y-12 National Security Complex
G. L. Laws, *Contributing Member*, Washington State Department of Health, Office of Radiation Protection
J. S. MacMurray, *Contributing Member*, Savannah River National Laboratory

PROJECT TEAM ON SECTION FM: HIGH STRENGTH HEPA FILTERS

C. I. Ricketts, *Chair*, Engineering Services Company, LLC
B. M. Baker, SciTech Services, Inc.
S. Barnette, U.S. Department of Energy
W. Bergman, Aerosol Science
G. Dalton, Bechtel National, Inc.
S. Dinakaran, AAF Flanders
E. Duvekot, Porvair Filtration Group, Inc.
M. R. Hahn, U.S. Department of Energy
J. R. Kriskovich, Kurion, Inc.
J. S. MacMurray, Savannah River National Laboratory

L. E. Major, Lydall
D. P. Nguyen, U.S. Army Edgewood Chemical Biological Center
G. G. Pyle, Knolls Atomic Power Laboratory
J. R. Schultz, U.S. Department of Energy
A. Stillo, Camfil USA, Inc.
J. A. Stormo, Mississippi State University — Institute for Clean Energy Technology
N. S. Zaremba, Newport News Shipbuilding
G. L. Laws, *Contributing Member*, Washington State Department of Health, Office of Radiation Protection

SUBCOMMITTEE ON GAS PROCESS TREATMENT EQUIPMENT

R. T. Jubin, *Chair*, Oak Ridge National Laboratory
M. R. Hargan, *Vice Chair*, Hargan Engineering
T. B. Axley, Jr., North Wind Group
M. Bauer, Westinghouse Electric Germany GmbH
J. O. Bettie, U.S. Nuclear Regulatory Commission
S. Brink, ANSTO
M. J. Fox, ECU Corp.
D. Ghosh, Southern Nuclear

D. Klein, AREVA NP, Inc.
J. R. Kriskovich, Kurion, Inc.
D. Ryland, Canadian Nuclear Laboratories
M. Sulva, APTIM — Kings Bay Support Services, LLC
C. Wojcik, PMT Nuclear
C. A. Curtis, *Contributing Member*, West Valley Nuclear
W. P. Drosjack, *Contributing Member*, Retired
I. Kutuzov, *Contributing Member*, Alfa Laval, Inc. (Canada)

PROJECT TEAM ON SECTION GA: HEAT EXCHANGERS

M. J. Fox, *Chair*, ECU Corp.
M. R. Hargan, *Vice Chair*, Hargan Engineering
D. Ghosh, *Contributing Member*, Southern Nuclear

J. R. Kriskovich, *Contributing Member*, Kurion, Inc.
I. Kutuzov, *Contributing Member*, Alfa Laval, Inc. (Canada)
C. Wojcik, *Contributing Member*, PMT Nuclear

PROJECT TEAM ON SECTION GB: NOBLE GAS HOLDUP EQUIPMENT

M. Sulva, *Chair*, APTIM — Kings Bay Support Services, LLC
T. B. Axley, Jr., North Wind Group
S. Brink, ANSTO
D. M. Dykes, Consultant
D. Ghosh, Southern Nuclear
M. R. Hargan, Hargan Engineering

R. T. Jubin, Oak Ridge National Laboratory
J. B. Roberts, National Security Technologies, LLC
D. Ryland, Canadian Nuclear Laboratories
N. Soelberg, Idaho National laboratory
A. Soma, Camfil USA, Inc.

PROJECT TEAM ON SECTION GC: MULTISTAGE BLOWERS

M. J. Fox, *Chair*, ECU Corp.
M. R. Hargan, *Vice Chair*, Hargan Engineering
T. B. Axley, Jr., North Wind Group

A. M. Kouvolio, Consultant
W. P. Drosjack, *Contributing Member*, Retired

PROJECT TEAM ON SECTION GE: HYDROGEN RECOMBINERS

M. Sulva, *Chair*, APTIM — Kings Bay Support Services, LLC
M. Bauer, *Vice Chair*, Westinghouse Electric Germany GmbH
T. B. Axley, Jr., North Wind Group
M. R. Hargan, Hargan Engineering
R. T. Jubin, Oak Ridge National Laboratory
D. Klein, AREVA NP, Inc.
J. B. Roberts, National Security Technologies, LLC

G. Roca, Westinghouse Electric Spain
D. Ruiz Varona, Nuclenor
D. Ryland, Canadian Nuclear Laboratories
R. Cowen, *Contributing Member*, GE Hitachi
D. M. Dykes, *Contributing Member*, Consultant
D. Ghosh, *Contributing Member*, Southern Nuclear

PROJECT TEAM ON SECTION GG: SCRUBBERS

T. B. Axley, Jr., *Chair*, North Wind Group
J. O. Bettie, U.S. Nuclear Regulatory Commission
D. M. Dykes, Consultant
M. R. Hargan, Hargan Engineering
R. T. Jubin, Oak Ridge National Laboratory
D. Ryland, Canadian Nuclear Laboratories

N. Soelberg, Idaho National Laboratory
M. Bauer, *Contributing Member*, Westinghouse Electric Germany GmbH
R. Cowen, *Contributing Member*, GE Hitachi
W. P. Drosjack, *Contributing Member*, Retired
D. Ghosh, *Contributing Member*, Southern Nuclear

PROJECT TEAM ON SECTION GH: CYCLONES

T. B. Axley, Jr., *Vice Chair*, North Wind Group
J. O. Bettie, U.S. Nuclear Regulatory Commission
D. M. Dykes, Consultant

R. T. Jubin, Oak Ridge National Laboratory
R. Cowen, *Contributing Member*, GE Hitachi
W. P. Drosjack, *Contributing Member*, Retired

SUBCOMMITTEE ON GENERAL SUPPORT SERVICES

J. C. Royer, *Chair*, Sargent & Lundy, LLC
R. K. Aggarwal, *Vice Chair*, Sargent & Lundy, LLC
J. O. Bettie, U.S. Nuclear Regulatory Commission
M. A. Doersam, Ellis & Watts Global Industries, Inc.
R. Flye, Consultant
D. J. Grover, Consultant
S. Khabir, Washington River Protection Solutions/Hanford
K. G. Nelson, Porvair Filtration Group, Inc.

G. Roca, Westinghouse Electric Spain
T. J. Schaefer, Sargent & Lundy, LLC
M. Sulva, APTIM — Kings Bay Support Services, LLC
T. Vogan, Sargent & Lundy, LLC
W. F. Williams, AREVA Inc.
R. Blose, *Contributing Member*, SSM Industries, Inc.
N. Galante, *Contributing Member*, AAF International

PROJECT TEAM SYSTEMS DESIGN

M. A. Doersam, *Chair*, Ellis & Watts Global Industries, Inc.
R. K. Aggarwal, Sargent & Lundy, LLC
B. C. Elliott, Super Radiator Coils
N. Galante, AAF International
D. Ghosh, Southern Nuclear

D. Gibbs, Camfil USA, Inc.
L. Krooswyk, Burns & McDonnell
G. Roca, Westinghouse Electric Spain
A. Soma, Camfil USA, Inc.
M. Sulva, APTIM — Kings Bay Support Services, LLC

SUBCOMMITTEE ON TECHNOLOGY

A. Soma, *Chair*, Camfil USA, Inc.
N. S. Zaremba, *Vice Chair*, Newport News Shipbuilding
R. K. Aggarwal, Sargent & Lundy, LLC
T. B. Axley, Jr., North Wind Group
E. M. Banks, NUCON International, Inc.
M. A. Doersam, Ellis & Watts Global Industries, Inc.
C. Fosseen, Newport News Shipbuilding
D. Ghosh, Southern Nuclear
C. E. Graves, NUCON International, Inc.
J. R. Kriskovich, Kurion, Inc.
J. C. Medley, Nevada National Security Site
D. P. Nguyen, U.S. Army Edgewood Chemical Biological Center

J. C. Royer, Sargent & Lundy, LLC
R. R. Sommer, NUCON International, Inc.
M. T. Sorna, Puget Sound Naval Shipyard
C. B. Summers, NUCON International, Inc.
T. J. Vogan, Sargent & Lundy, LLC
C. A. Waggoner, Mississippi State University — Institute for Clean Energy Technology
T. Wander, AAF International
J. Webb, Y-12 National Security Complex
G. L. Laws, *Contributing Member*, Washington State Department of Health, Office of Radiation Protection

SUBCOMMITTEE ON TESTING AND INSPECTION

N. S. Zaremba, *Chair*, Newport News Shipbuilding
S. Khabir, *Vice Chair*, Washington River Protection Solutions/
Hanford
E. M. Banks, NUCON International, Inc.
S. Barnette, U.S. Department of Energy
S. M. Cox, NCS Corp.
K. S. Eng, U.S. Army Research, Development and Engineering
Command
R. Flye, Consultant
C. Fosseen, Newport News Shipbuilding
R. Giberson, Clayton Associates, Inc.
M. R. Hahn, U.S. Department of Energy
G. L. Laws, Washington State Department of Health, Office of Radia-
tion Protection
J. Levinson, BWX Technologies, Inc.
J. S. MacMurray, Savannah River National Laboratory
E. McCormick, Washington State Department of Health, Radioactive
Air Emissions
J. C. Medley, Nevada National Security Site
B. Prinkey, NCS Corp.
G. G. Pyle, Knolls Atomic Power Laboratory
A. Salvatore, U.S. Army Research, Development and Engineering
Command, Chemical Biological Center
D. Schoepflin, Pacific Northwest National Laboratory
R. R. Sommer, NUCON International, Inc.
M. T. Sorna, Puget Sound Naval Shipyard
T. Wander, AAF International
J. Webb, Y-12 National Security Complex
D. P. Nguyen, *Contributing Member*, U.S. Army Edgewood Chemical
Biological Center
G. D. Singleton, *Contributing Member*, AF International

SUBCOMMITTEE ON VENTILATION AIR CONDITIONING EQUIPMENT

D. Ghosh, *Chair*, Southern Nuclear
M. J. Fox, *Vice Chair*, ECU Corp.
T. B. Axley, Jr., North Wind Group
B. C. Elliott, Super Radiator Coils
S. J. Fackleman, Ellis & Watts Global Industries
M. R. Hargan, Hargan Engineering
G. Roca, Westinghouse Electric Spain
T. J. Schaefer, Sargent & Lundy, LLC
C. Wojcik, PMT Nuclear
W. P. Drosjack, *Contributing Member*, Retired
R. Kim, *Contributing Member*, Finetec Century America, Inc.
R. N. Knoche, *Contributing Member*, Consultant
I. Kutuzov, *Contributing Member*, Alfa Laval, Inc. (Canada)

CORRESPONDENCE WITH THE COMMITTEE ON NUCLEAR AIR AND GAS TREATMENT

General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Code may interact with the Committee by requesting interpretations, proposing revisions or a case, and attending Committee meetings. Correspondence should be addressed to:

Secretary, Standards Committee on Nuclear Air and Gas Treatment
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
<http://go.asme.org/Inquiry>

Proposing Revisions. Revisions are made periodically to the Code to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Code. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Code. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Proposing a Case. Cases may be issued to provide alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Code and the paragraph, figure, or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Code to which the proposed Case applies.

Interpretations. Upon request, the Standards Committee on Nuclear Air and Gas Treatment (CONAGT) will render an interpretation of any requirement of the Code. Interpretations can only be rendered in response to a written request sent to the Secretary of CONAGT.

Requests for interpretation should preferably be submitted through the online Interpretation Submittal Form. The form is accessible at <http://go.asme.org/InterpretationRequest>. Upon submittal of the form, the Inquirer will receive an automatic e-mail confirming receipt.

If the Inquirer is unable to use the online form, he/she may mail the request to the Secretary of CONAGT at the above address. The request for an interpretation should be clear and unambiguous. It is further recommended that the Inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry in one or two words.
Edition:	Cite the applicable edition of the Code for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. Please provide a condensed and precise question, composed in such a way that a "yes" or "no" reply is acceptable.
Proposed Reply(ies):	Provide a proposed reply(ies) in the form of "Yes" or "No," with explanation as needed. If entering replies to more than one question, please number the questions and replies.
Background Information:	Provide the Committee with any background information that will assist the Committee in understanding the inquiry. The Inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in the format described above may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

Moreover, ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Code requirements. If, based on the inquiry information submitted, it is the opinion of the Committee that the Inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not “approve,” “certify,” “rate,” or “endorse” any item, construction, proprietary device, or activity.

Attending Committee Meetings. CONAGT regularly holds meetings and/or telephone conferences that are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of CONAGT.

ORGANIZATION OF ASME AG-1

(19)

1 GENERAL

The ASME Code on Nuclear Air and Gas Treatment consists of Divisions I through IV. All divisions are broken down into sections designated by two capital letters. Each division is made up as follows:

Division I: General Requirements

Section AA: Common Articles

Section AB: System Design Guide

Division II: Ventilation Air Cleaning and Ventilation Air Conditioning

Section BA: Fans and Blowers

Section DA: Dampers and Louvers

Section SA: Ductwork

Section HA: Housings

Section RA: Refrigeration Equipment

Section CA: Conditioning Equipment

Section FA: Moisture Separators

Section FB: Medium Efficiency Filters

Section FC: HEPA Filters

Section FD: Type II Adsorber Cells

Section FE: Type III Adsorbers

Section FF: Adsorbent Media

Section FG: Mounting Frames for Air-Cleaning Equipment

Section FH: Other Adsorbers

Section FI: Metal Media Filters

Section FJ: Low Efficiency Filters

Section FK: Special HEPA Filters

Section FL: Deep Bed Sand Filters

Section FM: High-Strength HEPA Filters

Section FN: Filter Media: High Efficiency

Section IA: Instrumentation and Controls

Division III: Process Gas Treatment

Section GA: Heat Exchangers

Section GB: Noble Gas Hold-Up Equipment

Section GC: Gas Compressors and Exhausters

Section GE: Hydrogen Recombiners and Igniters

Section GF: Gas Sampling

Section GG: Scrubbers

Section GH: Cyclones

Section GJ: Filters

Section GK: Mist Eliminators

Section GM: Noble Gas Hold-Up Media

Division IV: Testing Procedures

Section TA: Field Testing of Air Treatment Systems

Section TB: Field Testing of Gas-Processing Systems

2 SECTIONS

Sections are divided into articles, subarticles, paragraphs, and, where necessary, subparagraphs and subsubparagraphs.

3 ARTICLES

Articles are designated by the application letters indicated above for the sections, followed by Arabic numbers in units of 1000, such as BA-1000 or RA-2000. Where possible, articles dealing with the same topics are given the same number in each section in accordance with the following:

Article Number	Title
1000	Introduction
2000	Referenced Documents
3000	Materials
4000	Structural Design
5000	Inspection and Testing
6000	Fabrication, Joining, Welding, Brazing, Protective Coating, and Installation
7000	Packaging, Shipping, Receiving, Storage, and Handling
8000	Quality Assurance
9000	Nameplates and Stamping

The numbering of articles and the material contained in the articles may not, however, be consecutive. Because the complete outline may cover phases not applicable to a particular section or article, the rules have been prepared with some gaps in the numbering.

4 SUBARTICLES

Subarticles are numbered in units of 100, such as BA-1100 or RA-1200.

5 SUBSUBARTICLES

Subsubarticles are numbered in units of 10, such as BA-2130, and generally have no text. When a number such as BA-1110 is followed by text, it is considered a paragraph.

6 PARAGRAPHS

Paragraphs are numbered in units of 1, such as BA-2131 or RA-2132.

7 SUBPARAGRAPHS

Subparagraphs, when they are major subdivisions of a paragraph, are designated by adding a decimal followed by one or more digits to the paragraph number, such as BA-1111.1 or RA-1111.2. When they are minor subdivisions of a paragraph, subparagraphs may be designated by lowercase letters in parentheses, such as BA-1111(a) or RA-1111(b).

8 SUBSUBPARAGRAPHS

Subsubparagraphs are designated by adding lowercase letters in parentheses to major subparagraph numbers, such as BA-1111.1(a) or RA-1111.2(b). When further subdivisions of minor subparagraphs are necessary, subsubparagraphs are designated by adding Arabic numerals in parentheses to the subparagraph designation, such as BA-1111(a)(1) or RA-1111(a)(2).

9 APPENDICES

Appendices pertaining to each section appear at the end of each section and are designated with the section prefix. Nonmandatory appendices are designated by letters of the alphabet, and mandatory appendices are designated by Roman numerals. Metric appendices carry the same designators as customary appendices, with the prefix “M.”

ASME AG-1-2019

SUMMARY OF CHANGES

Following approval by the ASME AG Committee and ASME, and after public review, ASME AG-1-2019 was approved by the American National Standards Institute on August 8, 2019.

ASME AG-1-2019 includes the following changes identified by a margin note, **(19)**.

<i>Page</i>	<i>Location</i>	<i>Change</i>
xlv	Organization of ASME AG-1	Paragraph 1 revised
1	AA-1400	Definitions of <i>manufacturer's qualified standard or material</i> and <i>safe shutdown earthquake</i> editorially revised
27	AA-6324.3	Paragraph editorially revised
27	AA-6324.4	Paragraph editorially revised
30	AA-6511	First sentence editorially revised
39	Table AA-10540-1	Table editorially revised
41	Article AA-A-3000	Editorially revised
50	AA-A-7311	Editorially revised
60	Article AA-C-2000	Editorially revised
62	Section AB	Added
75	BA-1400	Definitions of <i>axial fans</i> , <i>fan arrangement number</i> , <i>inlet/outlet cones</i> , and <i>stall/surge limit</i> editorially revised
78	BA-4121	Editorially revised
86	BA-A-1400	Editorially revised
91	DA-1480	Definition of <i>fire damper construction</i> editorially revised
99	Article DA-9000	Title editorially revised
99	DA-9100	Title editorially revised
102	Figure DA-II-1000-2	Title added
102	Figure DA-II-1000-3	Title added
103	Figure DA-II-1000-4	Title added
103	Figure DA-II-1000-5	Title added
104	Figures DA-II-1000-6	Title added
108	Table DA-A-1000-1	For DA-9000, Item editorially revised
110	SA-1400	(1) Definitions of <i>accessories</i> and <i>grille</i> editorially revised (2) <i>damper</i> , <i>splitter</i> editorially revised to <i>splitter damper</i> and its definition editorially revised
115	SA-4410	In subpara. (b), second sentence editorially revised
115	SA-4430	First sentence editorially revised
115	SA-4451	Subparagraphs (c)(1) through (c)(3) editorially revised
116	SA-4455	Added
116	SA-4533	Editorially revised
119	SA-6122	Editorially revised

<i>Page</i>	<i>Location</i>	<i>Change</i>
122	Table SA-6400-2	In first row, entry in first column corrected by errata to read “Less than 12”
123	Table SA-6400-3	Definition of <i>t</i> revised
126	Article SA-B-1000	Title added
126	SA-B-1100	First sentence editorially revised
126	SA-B-1221	First sentence editorially revised
133	SA-B-1233	In subpara. (c), reference editorially revised
133	SA-B-1234	(1) First sentence editorially revised (2) Reference to CFR editorially revised
137	SA-B-1330	In third paragraph, second sentence editorially revised
142	Article SA-C-1000	Title added
142	SA-C-1100	References editorially revised
142	SA-C-1210	In subpara. (a)(1), second sentence editorially revised
143	SA-C-1300	Second sentence revised
143	Table SA-C-1300-1	Title added
146	Article HA-2000	AISI S100 added
147	HA-4211	Definition of <i>hydrostatic load</i> editorially revised
148	HA-4220	First paragraph editorially revised
149	HA-4248	Revised
150	HA-4434	Last sentence editorially revised
151	HA-4444	Added
153	HA-5310	Title editorially revised
154	HA-6214	Last sentence editorially revised
155	HA-6312	Editorially revised
158	Article HA-B-1000	Title added
158	HA-B-1100	Editorially revised
158	HA-B-1210	In subpara. (a), second sentence editorially revised
158	HA-B-1220	Subparagraphs (a) through (c) editorially revised
160	Article HA-C-1000	Title added
160	HA-C-1100	Title added
161	HA-C-1430	Last sentence editorially revised
167	Article HA-D-1000	Title added
167	HA-D-1300	Paragraph HA-D-1330 deleted
167	HA-D-1350	Second paragraph editorially revised
168	HA-D-1720	Last sentence editorially revised
169	Section RA	Revised in its entirety
212	CA-5220	In subpara. (a), quotation marks around second sentence deleted
218	Table CA-A-1000-1	For CA-9000, Item editorially revised
222	Table FA-4100-1	U.S. Customary symbols for values editorially revised
222	Figure FA-4100-1	Callouts editorially revised
226	FB-1400	In first paragraph, cross-reference editorially revised to AA-1400
231	FC-1400	(1) Definition of <i>available-to-flow medium area</i> added (2) Definition of <i>medium face velocity</i> revised (3) Definition of <i>most penetrating particle size</i> deleted
231	Article FC-2000	Revised

<i>Page</i>	<i>Location</i>	<i>Change</i>
232	FC-3110	Revised
232	FC-3111	(1) Subparagraph (c) corrected by errata to read “B18.21.1/ B18.21.2M (2) Subparagraphs (e) through (h) deleted (3) Subparagraphs (i) through (k) revised and redesignated as (e) through (g)
232	FC-3121	Revised
232	FC-3122	Revised
233	FC-3130	Cross-reference revised
233	FC-3140	Revised
233	FC-3160	Subparagraph (b) editorially revised
233	FC-3170	Added
233	FC-3210	Editorially revised
233	FC-4110	Subparagraph (b) revised
234	Figure FC-4110-1	Revised
234	Figure FC-4110-2	Revised in its entirety
235	Figure FC-4110-3	Revised
233	FC-4130	(1) In subpara. (c), value of crest-to-crest contacts variation revised (2) Value in last sentence of subpara. (d) revised
237	FC-4141	Revised
237	FC-4142	Revised
237	Figure FC-4142-1	Revised
237	FC-4151	(1) In subpara. (b), last Celsius temperature revised (2) In subpara. (c), reference revised
238	FC-4200	Subparagraph (e) revised
238	FC-4300	Revised
238	FC-5100	Revised in its entirety
239	FC-5130	First paragraph revised
239	FC-5140	Last paragraph revised
240	Table FC-5140-1	Second column revised
240	FC-5160	Second and third paragraphs revised
240	FC-5200	Revised
241	FC-6211	Revised
241	FC-6212	Revised
241	Article FC-7000	Revised
241	Article FC-9000	Title revised
241	FC-9100	Revised in its entirety
242	Mandatory Appendix FC-I	Deleted
243	Table FC-A-1000-1	For FC-9000, Item revised
247	FD-4320	Subparagraph (c) editorially revised
249	FD-6400	Editorially revised
249	FD-7300	Subparagraph (b) editorially revised
252	Article FD-II-1000	Title added
252	FD-II-1300	Definition of <i>test tray assembly</i> editorially revised
252	Article FD-II-2000	In last paragraph, first sentence editorially revised

<i>Page</i>	<i>Location</i>	<i>Change</i>
255	Table FD-A-1000-1	For FD-9000, Item editorially revised
256	FE-1400	First paragraph revised
257	FE-4110	Editorially revised
261	FE-4621	Revised
263	FE-9100	First sentence editorially revised
265	Article FE-II-3000	Editorially revised
266	FE-III-4300	In second paragraph, first sentence editorially revised
268	Article FE-IV-3000	(1) Fifth paragraph and subparas. (a) through (e) editorially revised (2) In eighth paragraph, second sentence editorially revised
269	Figure FE-IV-3000-1	Title added
270	Figure FE-IV-4100-1	Title added
270	FE-IV-4500	Last sentence editorially revised
271	Article FE-V-1000	Title added
271	Article FE-V-2000	Last paragraph editorially revised
273	FE-A-1300	Editorially revised
273	FE-A-1400	Subparagraph (c) editorially revised
277	FF-5213	Editorially revised
278	Article FF-9000	Title editorially revised
279	Table FF-A-1000-1	For FF-9000, Item editorially revised
280	FG-1200	Revised
284	FG-4220	Editorially revised
284	FG-4310	Last paragraph editorially revised
285	FG-4330	References editorially revised
294	FH-4230	Third paragraph editorially revised
297	FH-6400	Editorially revised
299	Table FH-A-1000-1	For FH-9000, Item editorially revised
301	FJ-1400	Definition of “MERV” deleted
302	FJ-5110	Editorially revised in its entirety
305	Table FJ-A-1000-1	For FJ-9000, Item editorially revised
306	FK-1330	First sentence editorially revised
306	FK-1400	Definition of <i>most penetrating particle size</i> deleted
308	FK-3130	Revised
308	FK-3160	Subparagraphs (a) and (b) editorially revised
309	FK-3170	Second sentence editorially revised
309	Table FK-4111-1	U.S. Customary unit for maximum resistance editorially revised
310	FK-4112	First and third paragraphs editorially revised
315	Table FK-4112-1	U.S. Customary unit for maximum resistance editorially revised
313	FK-4131	Editorially revised
317	FK-5140	Second paragraph editorially revised
318	FK-5150	Third paragraph editorially revised
318	FK-5160	Third paragraph editorially revised
318	FK-5200	Fifth paragraph editorially revised
320	FK-5260	Third paragraph editorially revised
321	FK-5410	U.S. Customary unit editorially revised

<i>Page</i>	<i>Location</i>	<i>Change</i>
321	FK-5440	Second and fourth paragraphs editorially revised
321	FK-5450	Third paragraph editorially revised
322	FK-5460	Third paragraph editorially revised
323	Article FK-9000	Subparagraph (f) editorially revised
326	FL-1400	Definition of <i>design life</i> editorially revised
326	Article FL-2000	Reference to Industrial Ventilation added
329	FL-4210	Subparagraphs (b), (c), (d), and (e) editorially revised
331	FL-5120	First sentence editorially revised
332	FL-5232	Reference editorially revised
333	FL-6340	Reference editorially revised
335	Mandatory Appendix FL-I	Title revised
335	Article FL-I-4000	Title revised
336	FL-I-4200	Subparagraph (b) editorially revised
337	Mandatory Appendix FL-II	Title revised
337	FL-II-3100	Subparagraph (c) editorially revised
337	FL-II-3200	Title revised
343	FL-B-4210	Second sentence editorially revised
345	Section FN	Added
354	IA-4110	Editorially revised
358	IA-5220	Editorially revised
358	IA-5230	Editorially revised
359	IA-6100	Editorially revised
360	IA-9100	Editorially revised
364	Article IA-C-1000	Title added
366	Article GA-2000	In first paragraph, cross-reference revised
371	GA-4412	Editorially revised
375	GA-5220	Editorially revised
376	GA-6100	Subparagraph (a) editorially revised
377	GA-7100	Subparagraph (d) editorially revised
382	Article GA-B-1000	Title added
384	Article GC-2000	Contents of GC-2100 moved to Article GC-2000 and its heading editorially deleted
387	GC-4152.1	Title and first sentence editorially revised
387	GC-4211.5	Editorially revised
397	Table GC-A-1000-1	For GC-9400, Item editorially revised
399	Section GD	Deleted
400	GE-1400	Definitions of <i>design-basis accident</i> and <i>thermal/active recombining</i> editorially revised
404	GE-4410	Subparagraph (a) editorially revised
411	GE-C-1100	Editorially revised
411	GE-C-1120	Subparagraph (b) editorially revised
415	Section GI	Deleted
418	Section GL	Deleted
420	GM-5210	Subparagraph (b) editorially revised
420	GM-7100	First sentence editorially revised

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421	GM-7320	Expression of transmission rate editorially revised
422	Article GM-9000	Title editorially revised
422	GM-9100	First sentence editorially revised
424	GM-B-1200	Editorially reformatted
426	Article GM-B-5000	Editorially revised
429	TA-1300	First sentence editorially revised
429	TA-1400	Definitions of <i>challenge gas</i> and <i>test canister</i> editorially revised
434	TA-4140	Editorially revised
434	TA-4160	Editorially revised
437	TA-4440	First sentence editorially revised
438	TA-4540	Editorially revised
439	TA-4550	Last sentence corrected by errata to read “TA-4551 through TA-54559”
439	TA-4560	Editorially revised
439	Table TA-4610-1	First column head editorially revised
440	Table TA-4710-1	First column head editorially revised
444	Article TA-I-1000	Title editorially revised
446	Mandatory Appendix TA-II	Title revised
446	Article TA-II-1000	Title editorially revised and first sentence revised
446	Article TA-II-4000	Title revised
447	Mandatory Appendix TA-III	Title revised
447	Article TA-III-1000	Title editorially revised and first sentence revised
447	Article TA-III-4000	Title revised
449	Mandatory Appendix TA-IV	Title revised
449	Article TA-IV-1000	Title editorially revised and first sentence revised
449	Article TA-IV-2000	Editorially revised
449	Article TA-IV-3000	Editorially revised
449	Article TA-IV-4000	Title revised and subpara. (c) editorially revised
450	Mandatory Appendix TA-V	Title revised
450	Article TA-V-1000	Title editorially revised and first sentence revised
450	Article TA-V-4000	Title revised
452	Mandatory Appendix TA-VI	Title revised
452	Article TA-VI-1000	Title editorially revised and first sentence revised
452	Article TA-VI-4000	Title revised
453	Mandatory Appendix TA-VII	Title revised
453	Article TA-VII-1000	Title editorially revised and first sentence revised
453	Article TA-VII-4000	Title revised and subpara. (c) editorially revised
454	Mandatory Appendix TA-VIII	Title revised
454	Article TA-VIII-4000	Title revised
454	TA-VIII-4000	Title revised
454	TA-VIII-4100	Title revised
456	Nonmandatory Appendix TA-A	Title revised
456	Article TA-A-1000	Revised
456	Article TA-A-4000	Title revised

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457	Article TA-B-1000	Title editorially added
458	TA-C-1000	Title editorially added
458	TA-C-1100	Editorially revised
458	TA-C-1200	Editorially revised

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Division I

General Requirements

SECTION AA

COMMON ARTICLES

ARTICLE AA-1000

INTRODUCTION

AA-1100 SCOPE

This Code provides requirements for the performance, design, fabrication, installation, inspection, acceptance testing, and quality assurance of equipment used in air and gas treatment systems in nuclear facilities.

AA-1200 PURPOSE

The purpose of this Code is to ensure that equipment used in nuclear facilities for air and gas treatment systems is acceptable in all aspects of design and operation.

AA-1300 APPLICABILITY

This Code applies only to individual components in a system. This Code does not cover any functional system design requirements or sizing of complete systems, or any operating characteristics of these systems. The responsibility for meeting each requirement of this Code shall be assigned to the Owner or assigned designee.

The requirements of ASME AG-1 for air and gas treatment components may be used for engineered safety features systems and normal systems in nuclear power generation facilities, and for air cleaning systems in other nuclear facilities. The design and procurement specifications shall delineate the design, qualification, and quality assurance requirements appropriate for the application.

(19) AA-1400 DEFINITIONS AND TERMS

Each Code section shall delineate the definitions and terms unique to that section. Definitions that have common application are listed in this Article.

acceptance test: a test made upon completion of fabrication, installation, repair, or modification of a unit, component, or part to verify to the user or Owner that the item meets specified requirements.

active component: any component that must perform a mechanical motion or change of state during the course of accomplishing a nuclear safety-related function.

air density: 0.075 lb/ft³ (1.201 kg/m³) for standard air. This corresponds to air at a pressure of 29.92 in. Hg (760 mm Hg) at a temperature of 69.8°F (21°C) with a specific volume of 13.33 ft³/lb (0.832 m³/kg).

airflow (cfm, acfm, scfm, acms, scms): expressed in terms of cubic feet of air per minute (cfm). Actual cfm (acfm) is a cubic foot of air with a density at actual existing conditions. Standard cfm (scfm) is a cubic foot of air with a standard density. The terms “acms” and “scms” correspondingly apply to cubic meters per second under actual and standard conditions.

allowable deflection (d_{all}): the deflection resulting from each of the component loading conditions defined in AA-4212.

allowable stress value (S): the maximum stress limit to be used in the design.

assembly: two or more devices sharing a common mounting or supporting structure.

broadband response spectrum: a response spectrum that describes the motion indicating that multiple frequency excitation predominates.

certificate of compliance: a written statement attesting that the materials are in accordance with specified requirements.

certificate of conformance: a document signed or otherwise authenticated by an authorized individual certifying the degree to which items or services meet specified requirements.

Certified Material Test Report (CMTR): a document provided by the Material Manufacturer or Material Supplier and signed by an authorized individual that contains sufficient data and information to verify the physical and chemical properties of the furnished material.