MANDATORY APPENDIX XXIII
QUALIFICATIONS AND DUTIES OF CERTIFYING ENGINEERS
PERFORMING CERTIFICATION ACTIVITIES

ARTICLE XXIII-1000
QUALIFICATIONS AND DUTIES

XXIII-1100 SCOPE
This Appendix presents minimum requirements for the qualification of personnel engaged in the certification activities. The personnel addressed are those who perform the following certifications:

(a) for Division 1
   (1) certification of the Design Specification on behalf of the Owner
   (2) certification of the Design Report on behalf of the N Certificate Holder
   (3) certification of the Overpressure Protection Report on behalf of the Owner
   (4) certification of the Load Capacity Data Sheet on behalf of the N Certificate Holder

(b) for Division 2
   (1) certification of the Design Specification on behalf of the Owner
   (2) certification of the Construction Specification, Design Drawings, and Design Report on behalf of the Designer

(c) for Division 3
   (1) certification of the Design Specification on behalf of the N3 Certificate Holder
   (2) certification of the Design Report on behalf of the N3 Certificate Holder
   (3) certification of the Fabrication Specification on behalf of the N3 Certificate Holder

(d) for Division 4 — in the course of preparation

(e) for Division 5
   (1) for Class A nonmetallic core support structures
      (a) certification of the Design Specification on behalf of the Owner
      (b) certification of the Construction Specification, Design Drawings, and Design Report on behalf of the Designer
   (2) for all other components and supports
      (a) certification of the Design Specification on behalf of the Owner

XXIII-1200 QUALIFICATION AND EXPERIENCE
XXIII-1210 Initial Qualification
The Certifying Engineer shall attest in writing that he understands and meets the requirements of the ASME Code of Ethics and shall meet the requirements of either XXIII-1222 or XXIII-1223.
XXIII-1222 Initial Qualification of a Registered Professional Engineer

The Certifying Engineer shall meet the following:

(a) The Certifying Engineer shall be a Registered Professional Engineer in at least one state of the United States or province of Canada.

(b) The Certifying Engineer shall have 4 yr of varied application experience, at least 2 of which have been in each specialty field for which he performs certifying or review activities as delineated in XXIII-1230 through XXIII-1270.

XXIII-1223 Initial Qualification of a Chartered, Registered, or Licensed Engineer

The Certifying Engineer shall meet the following:

(a) The Certifying Engineer shall be a Chartered, Registered, or Licensed Engineer within either the jurisdiction where the design activity takes place or the jurisdiction of the regulatory authority issuing the license for the facility.

(b) The Certifying Engineer shall be chartered, registered, or licensed in accordance with one of the following:

   (1) International Register of Professional Engineers (IPEA) by an Authorized Member of the IPEA

   (2) Chartered, Registered or Licensed by a country or entity recognized by the Washington Accord: 1989

   (c) The Certifying Engineer shall have 4 yr of varied application experience, at least 2 of which have been in each specialty field for which he performs certifying or review activities as delineated in XXIII-1230 through XXIII-1270.

XXIII-1224 Maintenance

(a) The Certifying Engineer shall keep current his knowledge of Code requirements and continue his professional development in his specialty field through personal study and experience, or by attendance at appropriate courses, seminars, Society meetings, and technical committee meetings. A record of such activity shall be included in the qualification records of the Certifying Engineer submitted to the Owner or his designee, Designer, or Certificate Holder for review.

(b) The Certifying Engineer shall keep current any professional charters, registrations, or licenses used as the basis for qualification.

(c) The Owner or his designee, Designer, or Certificate Holder, as applicable, shall verify the qualifications of the Certifying Engineer at least once every 3 yr to ensure that the qualifications have been maintained. A continuing record of all such activity shall be included in the qualification records of the Certifying Engineer.

(d) Certifying Engineer qualification records shall be maintained and documented as required by Supplement 1 of this Appendix.

XXIII-1230 CERTIFIER OF THE DESIGN SPECIFICATION FOR ALL DIVISIONS

To qualify as certifier of the Design Specification, the Certifying Engineer shall be experienced in the applicable field of design and related nuclear facility requirements, and in the application of the requirements of the Code relating to the construction of nuclear facility items. This experience shall indicate that the Certifying Engineer has sufficient knowledge of anticipated plant and system operating and test conditions (Divisions 1, 2, and 5) or containment systems operating and test conditions (Division 3) and their relationship to Code design criteria pertinent to the applicable Code item. In addition, he shall be knowledgeable of the specific Code requirements pertaining to his specialty field. Requirements prescribing the degree of knowledge appropriate for preparation of the Design Specification are contained in Supplement 2, Table S2-1.

The following paragraphs provide additional Division-specific requirements necessary to establish the proper qualifications needed to certify Section III Design Specifications.

XXIII-1231 Certifier of the Design Specification for Divisions 1, 2, and 5

The Certifying Engineer certifying on behalf of the Owner or his designee shall be experienced in the applicable field of design and related nuclear facility requirements and in the application of the requirements of the Code relating to the construction of nuclear facility items.

For Division 5 applications, the Certifying Engineer shall also be knowledgeable of the additional Design Specification requirements necessary for proper elevated temperature design associated with high temperature reactors. Unique issues are also associated with the proper design and construction requirements for Division 5 nonmetallic core support structures.

XXIII-1232 Certifier of the Design Specification for Division 3

The Certifying Engineer certifying on behalf of the N3 Certificate Holder shall be experienced in the applicable field of Division 3 storage and transportation containment and associated internal support structure (basket) design requirements.

XXIII-1233 Certifier of the Design Specification for Division 4

In the course of preparation.
XXIII-1240  CERTIFIER OF THE LOAD CAPACITY DATA SHEET FOR DIVISIONS 1 AND 5 AND THE DESIGN REPORT FOR DIVISIONS 1, 3, AND 5 (EXCLUDING NONMETALLIC CORE SUPPORT STRUCTURES)

To qualify as certifier of the Load Capacity Data Sheet or Design Report, the Certifying Engineer shall be experienced in the applicable field of design and analysis and in the application of the requirements of the Code. In addition, he shall be knowledgeable of the specific Code requirements pertaining to his specialty field. Requirements prescribing the degree of knowledge appropriate for preparation of the Design Report and the Load Capacity Data Sheet are contained in Supplement 2, Tables S2-2 and S2-3, respectively.

XXIII-1250  CERTIFIER OF THE FABRICATION SPECIFICATION FOR DIVISION 3

To qualify as certifier of the Fabrication Specification on behalf of the N3 Certificate Holder, the Certifying Engineer shall be experienced in the applicable field of design, analysis, fabrication, and the application of Division 3 requirements. Requirements prescribing degree of knowledge appropriate for the preparation of the Fabrication Specification are contained in Supplement 2, Table S2-4.

XXIII-1260  CERTIFIER OF THE OVERPRESSURE PROTECTION REPORT FOR DIVISIONS 1, 2, AND 5

To qualify as certifier of the Overpressure Protection Report on behalf of the Owner or his designee, the Certifying Engineer shall be experienced in nuclear facility systems design, and in facility operation and safety control. In addition, he shall be knowledgeable of the specific Code requirements pertaining to his specialty field. Requirements prescribing the degree of knowledge appropriate for preparation of the Report on Overpressure Protection are contained in Supplement 2, Table S2-5.

XXIII-1270  CERTIFIER OF THE CONSTRUCTION SPECIFICATION, DESIGN DRAWING, AND DESIGN REPORT FOR DIVISION 2 AND FOR DIVISION 5 NONMETALLIC CORE SUPPORT STRUCTURES

To qualify as certifier of the Construction Specification, Design Drawings, or Design Report, the Certifying Engineer shall be experienced in the applicable field of design and analysis and in the application of the requirements of the Code. In addition, he shall be knowledgeable of the specific Code requirements pertaining to his specialty field. Requirements prescribing the degree of knowledge appropriate for preparation of the Construction Specification, Design Drawings, and Design Report are contained in Supplement 2, Table S2-6.

XXIII-1300  DUTIES

XXIII-1310  GENERAL

The certification activities covered in this Appendix may be performed only if the Certifying Engineer has ascertained and reviewed in detail by the Certifying Engineer, or prepared by him or prepared under his responsible direction. The Certifying Engineer shall include the appropriate Certification Statement in compliance with Supplement 3 of this Appendix (e.g., Design Specification, Design Report) attesting to compliance with the applicable requirements of the Code. The signature of the Certifying Engineer, included in the appropriate Certification Statement, is evidence that the requirements of XXIII-1310 have been met.

XXIII-1320  CERTIFICATION OF THE DESIGN SPECIFICATION

It is the responsibility of the Certifying Engineer certifying, on behalf of the Owner or his designee, the Owner’s Design Specification (Divisions 1, 2, and 5) or the N3 Certificate Holder’s Design Specification (Division 3) to assure that the Design Specification is correct, complete, and in compliance with the requirements of the applicable Edition and Addenda of the Code. As a minimum, the certifier of the Design Specification shall assure that:

(a) the function of the item is properly specified
(b) the design requirements, including identification of the item Design and Service Loadings or Operating Conditions and their combinations and associated Limits, are properly specified
(c) the proper environmental conditions, including corrosion, erosion, and radiation, are specified
(d) the Code classification is properly specified
(e) the definition of the specific boundaries and load conditions on these boundaries for each item is specified, and that the boundaries and associated load conditions between adjacent components and structure are compatible with the overall system design
(f) the specified materials for items covered by the Code are permitted by the Code for the applicable item
(g) all requirements with regard to impact testing are specified
(h) any restrictions on or additional requirements for heat treating are specified
(i) any restrictions on cladding materials are specified
(j) any reduction to design stress intensity values, allowable stress, or fatigue curves necessitated by the given environmental conditions are specified
(k) the necessary information concerning the load carrying capacity of structures supporting Code items is given
(l) when operability of a component is a requirement, the Design Specification shall make reference to other appropriate documents that specify the operating requirements
(m) the overpressure protection requirements are specified
(n) the Code Edition, Addenda, and Code Cases to be used for construction are specified

XXIII-1330 CERTIFICATION OF THE DESIGN REPORT FOR DIVISIONS 1, 3, AND 5 (EXCLUDING NONMETALLIC CORE SUPPORT STRUCTURES)

It is the responsibility of the Certifying Engineer certifying, on behalf of the Certificate Holder, the Design Report to assure that the design of the item complies with the requirements of the applicable Edition and Addenda of the Code for the Design, Service Loadings or Operating Conditions, and Test Loadings that have been specified in the Design Specification. As a minimum, the certifier of the Design Report shall assure that
(a) the Design Report reflects the design as shown by the drawings used for construction and that all modifications to the drawings and construction deviations have been reconciled with the Design Report
(b) the design as shown by the drawings is in accordance with the requirements of the Code
(c) the Design Report is in accordance with the requirements of the Code
(d) materials specified for Code items are permitted by the Code, and that any reduction of material impact properties from heat treatments, welding, and forming have been taken into account
(e) the Design Report is based on the Design, Service Loadings or Operating Conditions, and Test Loadings stated in the Design Specification
(f) the specified requirements for protection against nonductile fracture are specified
(g) all special nondestructive examinations required to validate unique features have been specified in appropriate documents/drawings
(h) the specified test pressure and temperature are in compliance with Code requirements
(i) adequate analytical techniques have been employed to assess the structural adequacy of the item of concern for the Design, Service Loadings or Operating Conditions, and Test Loadings specified

XXIII-1340 CERTIFICATION OF THE OVERPRESSURE PROTECTION REPORT FOR DIVISIONS 1, 2, AND 5

It is the responsibility of the Certifying Engineer certifying, on behalf of the Owner or his designee, the Overpressure Protection Report to assure that the report has been reconciled with the system requirements and with the requirements of the applicable Subsection of the Code.

XXIII-1350 CERTIFICATION OF THE LOAD CAPACITY DATA SHEET FOR DIVISIONS 1 AND 5

It is the responsibility of the Certifying Engineer certifying the Load Capacity Data Sheet on behalf of the Certificate Holder to determine that the load capacity of the component or piping support is rated in accordance with Subsection NF of the Code. He shall assure that the design of the component or piping support complies with the requirements of the applicable Edition and Addenda of the Code for the Design, Service, and Test Loadings specified in the Design Specification. In addition, his duties shall include the requirements of XXIII-1330(a) through XXIII-1330(i) for the data substantiating the Load Capacity Data Sheet.

XXIII-1360 CERTIFICATION OF THE CONSTRUCTION SPECIFICATION, DESIGN DRAWINGS, OR DESIGN REPORT FOR DIVISION 2 AND FOR DIVISION 5 NONMETALLIC CORE SUPPORT STRUCTURES

It is the responsibility of the Certifying Engineer certifying the Construction Specification, Design Drawings, or Design Report on behalf of the Designer for Division 2 to assure that each of the above principal Code documents is correct, complete, and in accordance with the Design Specification and Section III, Division 2. As a minimum, the certifier of each of the principal Code documents shall assure
(a) for Division 2:
   (1) that the Design Drawings contain
      (-a) concrete and steel liner thicknesses
      (-b) size and location of reinforcing steel, prestressing tendons, and penetrations
      (-c) the latest revisions to reflect any change in design
   (2) that the Design Report includes, as a minimum, the requirements of XXIII-1330(a) through XXIII-1330(i), as applicable
   (3) that the Construction Specification has provided the following in accordance with the Code:
      (-a) material specifications
      (-b) material shipping, handling, and storage requirements
      (-c) requirements for personnel or equipment qualification
### Table S2-2
Design Report — Divisions 1, 3, and 5 (Excluding Nonmetallic CSS) (Cont’d)

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Legend:
CSS = Core Support Structures
NX = NB/NC/ND/NE, as applicable
G = General Knowledge
W = Working Knowledge
HX = HB/HC, as applicable (including Subparts A and B), as well as references to Subsections NB and NC rules,
respectively

NOTES:
(1) Subsection HA, Subpart A references Subsection NCA for general requirements.
(2) As applicable.
(3) Subsections HF and HG (Subparts A and B) rules as well as references to Subsections NF and NG rules, respectively.

### Table S2-3
Load Capacity Data Sheet — Divisions 1 and 5

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### Table S2-3
**Load Capacity Data Sheet — Divisions 1 and 5 (Cont’d)**

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**NOTES:**
1. Subsection HA, Subpart A references Subsection NCA for general requirements.
2. Subsection HF, Subpart A references Subsection NF for rules.
3. As applicable.

### Table S2-4
**Fabrication Specification — Division 3**

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**Legend:**
- **G** = General Knowledge
- **W** = Working Knowledge
- **WX** = WB/WC/WD, as applicable
- Deleted per 18-2746
- **1200**
- **1400**

FOR ASME COMMITTEE USE ONLY
SUPPLEMENT 4 NONMANDATORY SAMPLE STATEMENTS

Form S4-1
Design Specification (Div. 1, 2, and 5)

CERTIFICATION

I, the undersigned, being a Certifying Engineer competent in the applicable field of design and related nuclear facility requirements relative to this Design Specification, certify that to the best of my knowledge and belief it is correct and complete with respect to the Design and Service Conditions given and provides a complete basis for construction in accordance with NCA-3250 and other applicable requirements of the ASME Boiler and Pressure Vessel Code, Section III, Division__________, __________ Edition with Addenda (if applicable) up to and including __________.

The Specification and Revision being certified is:

Certified by _________________ Certifying Engineer
Registration No. ____________ Registration Entity ____________
Date ______________________

Form S4-2
Design Report

CERTIFICATION

I, the undersigned, being a Certifying Engineer competent in the applicable field of design and using the certified Design Specification and the drawings identified below as a basis for design, do hereby certify that to the best of my knowledge and belief the Design Report is complete and accurate and complies with the design requirements of the ASME Boiler and Pressure Vessel Code, Section III, Division ______, ______ Edition with Addenda (if applicable) up to and including __________.

Design Specification and Revision:

Drawings and Revision:

Design Report and Revision:

Certified by _________________ Certifying Engineer
Registration No. ____________ Registration Entity ____________
Date ______________________

or Certified Design Report Summary

1 Similar statement may also be used for certification of Load Capacity Data Sheet when supplied in lieu of Design Report (NCA-3551).