Formal Interpretations/ Interprétation formelle

This section lists questions that individuals have submitted about a particular standard. Each question has been reviewed and answered by the appropriate committee. If you would like to submit a question about a particular standard, please see the end notes in the preface of that standard.

Posted Apr 19, 2021

The following interpretation regarding Clause 8.2.2 of CSA standard N287.3-14, Design requirements for concrete containment structures for nuclear power plants, has been approved by the Members of the CSA Technical Committee on *Concrete Containment and Safety Related Structures for Nuclear Power Plants (N287/291)*

Question:
i) Is the intention of Clause 8.2.2 of N287.3 for non-prestressed reinforced concrete design to provide more stringent requirements than Ultimate Limit State (ULS) prescribed in A23.3?
ii) Shall strain limit requirement of 0.002 per Clause 8.2.2 be considered together with concrete resistance factor of 0.65 from CSA A23.3? (i.e. shall concrete stress-strain curve be modified by concrete resistance factor)?

Answer
i) Yes.
ii) Yes

Posted Apr 19, 2021

The following interpretation regarding Clause 9.2.1 of CSA Standard CAN/CSA-C439-18, Laboratory methods of test for rating the performance of heat/energy-recovery ventilators, has been approved by the Members of the CSA Technical Committee on *Heating, Ventilation, Air Conditioning and Refrigeration.*

Question 1: The apparent effectiveness of an HRV/ERV shall be calculated as follows: To determine the value of M_s or M_e for use in Equation 7, one shall use the equations provided in Clause 9.3.3.1 defining M_s and Me (i.e., $M_s = M_2 \times (1-R)$, and $M_e = M_3 \times (1-R)$). Is this interpretation correct?

Answer 1: No. Further clarification may be required at next revision.

Question 2: The apparent effectiveness of an HRV/ERV shall be calculated as follows: To determine the value of M_s or M_e for use in Equation 7, one shall use the value of M_2 for M_s and M_3 for Me. Is this interpretation correct?

Answer 2: Yes. Further clarification may be required at next revision.

Posted Apr 19, 2021

The following interpretation regarding Clauses 9.3.3.4.3 (equation 15) and Clauses 9.3.3.4.4 (equation 16) of CSA Standard CAN/CSA-C439-18, Laboratory methods of test for rating the performance of heat/energy-recovery ventilators, has been approved by the Members of the CSA Technical Committee on *Heating, Ventilation, Air Conditioning and Refrigeration.*

Question 3: When calculating Q_{CD} for tests performed in cooling mode, one shall use Eq. 15 as written. When calculating Q_{CD} for tests performed in heating mode, one shall transpose the variables t_{air} and $t_{case,i}$ as follows:

$$Q_{CD} = \left(\sum_{i=1}^{n} UA_{cd,i} \, \mathrm{x} \left(t_{air} - t_{case,i} \right) \right) \mathrm{x} \, \theta_t$$

Likewise, when calculating Q_{CW} for tests performed in cooling mode, one shall use Eq. 16 as written. When calculating Q_{CW} for tests performed in heating mode, one shall transpose the variables h_{air} and $h_{case,i}$ as follows:

$$Q_{CW} = \left(\sum_{i=1}^{n} U_w A_{cw,i} \, \mathrm{x} \left(h_{air} - h_{case,i} \right) \right) \mathrm{x} \, \theta_t$$

Is this interpretation correct?

Answer 3: Yes. The objective is to take the absolute value between "air" and "case". Currently, laboratory is correctly applying the absolute value in their calculations. Further improvements should be included in the new revision for further clarifications.

Posted Apr 19, 2021

The following interpretation regarding Clause 9.3.3.5 of CSA Standard CAN/CSA-C439-18, Laboratory methods of test for rating the performance of heat/energy-recovery ventilators, has been approved by the Members of the CSA Technical Committee on *Heating, Ventilation, Air Conditioning and Refrigeration.*

Question 4: For HRVs/ERVs that circulate indoor air through the unit for defrost, the energy loss from the circulated air shall be calculated as follows: When using Eq. 17, the flow rate of the air circulated for defrost, M_D, shall be determined using the following equation: $M_D = M_2$ or M_3, whichever is greater. Is this interpretation correct?

Answer 4: No. Lab has sufficient measurements and responsibilities determine M_D Further improvements should be included in the new revision for further clarifications.

Posted Apr 19, 2021

The following interpretation regarding Clause 9.3.3.6 of CSA Standard CAN/CSA-C439-18, Laboratory methods of test for rating the performance of heat/energy-recovery ventilators, has been approved by the Members of the CSA Technical Committee on *Heating, Ventilation, Air Conditioning and Refrigeration.*

Question 5: Energy loss due to casing leakage shall be calculated in accordance with the following equations. For consistency with Equations 18 a) and 18 b), Clause 9.3.3.6 should be amended to read as follows: For tests performed in cooling mode, the absolute value of $(t_{3,i} - t_{4,i})$ shall be used in Equation 18 a), and the absolute value of $(t_{5,i} - t_{1,i})$ shall be used in Equation 18 b). Is this interpretation correct?

Answer 5: Yes. Missing $(t_{3,i} - t_{4,i})$ in the requirement following equations 18a and 18b.

Question 6: Energy loss due to casing leakage shall be calculated in accordance with the following equations. Q_L shall be set to zero whenever an H/ERV is in recirculation defrost mode. Is this interpretation correct?

Answer 6: Yes. When 9.3.3.3 applies, then Q_L can be set to 0 during defrost period. Standard can be updated for more clear definitions for the various defrost modes (i.e. recirculation defrost mode).

Question 6a: Energy loss due to casing leakage shall be calculated in accordance with the following equations. To evaluate the conditional equation:
If

$$\left[\left(M_{3,i} - M_{4,i} \times \frac{B_4'}{B_3'}\right) - \left(M_{2,i} \times R_1\right)\right] > 0.05 \times M_{max,i}$$

And to undertake the calculation in equation 18 a) of the C439 standard (if applicable), The absolute value of

$$\left[\left(M_{3,i} - M_{4,i} \times \frac{B_4'}{B_3'}\right) - \left(M_{2,i} \times R_1\right)\right]$$ Shall be used. Is this interpretation correct?

Answer 6a: No. However, Further evaluation is required to better understand the validity the QL calculations and its impact for qualification. Shall be considered for next revision.

Question 6b: Energy loss due to casing leakage shall be calculated in accordance with the following equations. To evaluate the conditional equation:

If

$$\left[\left(M_{1,i} - M_{4,i} \times \frac{B_4''}{B_1''}\right) - M_{2,i} \times (1 - R_2)\right] > 0.05 \times M_{max,i}$$

And to undertake the calculation in equation 18 b) of the C439 standard (if applicable), The absolute value of

$\left[\left(M_{1,i} - M_{4,i} \times \frac{B_4''}{B_1''}\right) - M_{2,i} \times (1 - R_2)\right]$ Shall be used. Is this interpretation correct?

Answer 6b: No. However, Further evaluation is required to better understand the validity the QL calculations and its impact for qualification. Shall be considered for next revision.

Question 6c: Energy loss due to casing leakage shall be calculated in accordance with the following equations. There are problems with the way that the conditional equations, resultant equations (if applicable) and summations are presented in clause 9.3.3.6.

Clause 9.3.3.6 should be interpreted as
For i = 1 to n
If

$$\left[\left(M_{3,i} - M_{4,i} \times \frac{B_4'}{B_3'}\right) - \left(M_{2,i} \times R_1\right)\right] > 0.05 \times M_{max,i}$$

Then Q_{L1i} =

$$\left[\left(M_{3,i} - M_{4,i} \times \frac{B_4'}{B_3'}\right) - \left(M_{2,i} \times R_1\right)\right] \times C_p \times \left(t_{3,i} - t_{4,i}\right) \times \Delta\theta_i \quad \text{Eq. 18a)}$$

Otherwise $Q_{L1i} = 0$

$Q_{L1} = \sum_{i=1}^{n} Q_{L1i}$

If

$$\left[\left(M_{1,i} - M_{4,i} \times \frac{B_4''}{B_1''}\right) - M_{2,i} \times (1 - R_2)\right] > 0.05 \times M_{max,i}$$

Then Q_{L2i} = $\left[\left(M_{1,i} - M_{4,i} \times \frac{B_4''}{B_1''}\right) - M_{2,i} \times (1 - R_2)\right] \times C_p \times \left(t_{5,i} - t_{1,i}\right) \times \Delta\theta_i$ Eq. 18b)

Otherwise $Q_{L2i} = 0$

$Q_{L2} = \sum_{i=1}^{n} Q_{L2i}$

Is this interpretation correct?

Answer 6c: Yes. Condition should be applied at each interval.

Posted Apr 19, 2021

The following interpretation regarding Clause 9.3.4 of CSA Standard CAN/CSA-C439-18, Laboratory methods of test for rating the performance of heat/energy-recovery ventilators, has been approved by the Members of the CSA Technical Committee on *Heating, Ventilation, Air Conditioning and Refrigeration.*

Question 7: Net Outdoor Airflow: During recirculation defrost, M_{sup}, M_{exh}, and M_{OA} should be set to zero in Equation 25. Is this interpretation correct?

Answer 7: Yes. Provided: Clause 9.3.3.3 applies

Further improvements should be considered in the new revision for further clarifications on how to determine whether 9.3.3.3 applies.

Posted Apr 19, 2021

The following interpretation regarding Clause 10.6.5 of CSA Standard CAN/CSA-C439-18, Laboratory methods of test for rating the performance of heat/energy-recovery ventilators, has been approved by the Members of the CSA Technical Committee on *Heating, Ventilation, Air Conditioning and Refrigeration*

Question 8: The low-temperature ventilation reduction for net outdoor airflow, supply airflow, and exhaust airflow shall be calculated as follows: When calculating $LTVR_E$, M_e shall be used for calculating m_{end} and m_{start}. Additionally, when calculating $LTVR_E$, M_e shall be equal to zero during periods of recirculation defrost. Is this interpretation correct?

Answer 8: Yes. Provided: Clause 9.3.3.3 applies

Further improvements should be considered in the new revision for further clarifications on how to determine whether 9.3.3.3 applies.

Posted Apr 19, 2021

The following interpretation regarding ~~Clause 10.6.6~~ Clause 3 Definitions of CSA Standard CAN/CSA-C439-18, Laboratory methods of test for rating the performance of heat/energy-recovery ventilators, has been approved by the Members of the CSA Technical Committee on *Heating, Ventilation, Air Conditioning and Refrigeration.*

Question 9: Clause 3 Definitions. Low Temperature Airflow Imbalance (LTAI) shall be calculated as follows:

$$\mathrm{LTAI}=\left[\frac{\frac{\sum_{i=0}^{n} Ms}{n}}{\frac{\sum_{i=0}^{n} Me}{n}}\right]\times 100\%$$

where $M_e = 0$ (when clause 9.3.3.3 applies) Is this interpretation correct?

Answer 9: Yes.

Posted Apr 19, 2021

The following interpretation regarding Clause 7.6.2 of CSA Standard CSA B51:19, Boiler, pressure vessel and pressure piping code, has been approved by the Members of the CSA Technical Committee on *Boilers and Pressure Vessels (B51)*.

Question 1: Does the term "anhydrous ammonia" as used in CSA B51 apply in the same way to both agricultural and refrigeration applications?

Answer 1: Yes. The definition is applicable to both agricultural and refrigeration applications.

Question 2: Is a pressure vessel containing ammonia for use in a refrigeration system considered an anhydrous ammonia tank?

Answer 2: Yes. The risks involved in storing ammonia for refrigeration requires its classification as an anhydrous ammonia tank.

Question 3: Does a pressure vessel with a water capacity greater than 13 600 L that contains ammonia for use in a refrigeration system require a manhole in accordance with clause 7.6.2?

Answer 3: Yes. The manhole is needed to permit inspection on vessels with water capacity greater than 13 600 L.

Posted Feb 26, 2021

The following interpretation regarding Clause 6.8.2 of CSA standard N289.3-10, Design procedures for seismic qualification of nuclear power plants, has been approved by the Members of the CSA Technical Committee on *Seismic Design for Nuclear Power Plants (N289)*.

Question:
i) Is the intent of clause 6.8.2 CSA N289.3-10 to add absolute values of piping responses to calculate total response in the multiple response spectra method where the seismic inputs to the piping system are known to be in phase?

ii) Is the intent of clause 6.8.2 (and in particular 6.8.2.4) CSA N289.3-10 to add absolute values of piping stresses from differential support movements to calculate total differential support movement response, when differential support movements are applied one at a time (i.e. in separate load cases)?

Answer:
i) Yes. This is correct for inertial effects, as indicated in the last sentence in Clause 6.8.2.3.

ii) No. Clause 6.8.2 (and in particular 6.8.2.4) does not address how to combine

stresses from differential support movements when they are applied one at a time.

Posted Feb 26, 2021

The following interpretation regarding Clause 7.6.5.2 of CSA standard N289.3:20, Design procedures for seismic qualification of nuclear power plants, has been approved by the Members of the CSA Technical Committee on *Seismic Design for Nuclear Power Plants (N289)*.

Question 1: For anchorage of conventional NPP SSCs that fall under NBCC, is it the intent to use, as a minimum, load combinations as per NBCC for their anchorage design as per Clause D.4.2?

Answer 1: Yes. NBCC load combinations shall be used as a minimum, but also load combinations as per N287 or N291 may be used, especially for anchorage of SSCs that are supported on containment or safety-related structures.

Question 2: For anchorage of conventional NPP SSCs that fall under NBCC, does clause D.4.3.3 apply so that there can be an anchorage design that can avoid the application of clauses D.4.3.4 to D.4.3.8?

Answer 2: No. D.4.3.3 should not apply such that clauses D.4.3.4. to D.4.3.8 are always applicable.

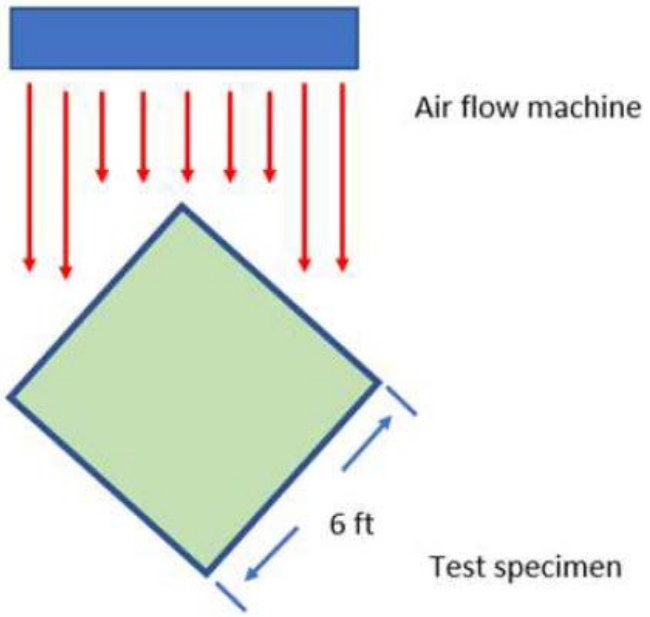
Posted Jan 28, 2021

The following interpretation regarding Clause 7.1 of CSA standard A123.24:15 (R2019), Standard test method for wind resistance of modular vegetated roof assembly, has been approved by the Members of the CSA Technical Committee on *Bituminous Roofing Materials (A123 Series)*.

Question: is the following interpretation right (YES) or wrong (NO)

Interpretation A) per 7.1

The with of the test specimen is measured as indicated on the drawing below?



Answer: Yes

Posted Jan 28, 2021

The following interpretation regarding Clause 10.7 of CSA Standard N293-12, Fire protection for nuclear power plants, has been approved by the Members of the CSA Standards Technical Committee on *Fire Protection for Nuclear Power Plants (N293)*.

Question: Does 10.7.4 apply to mobile foam carts and their contained concentrate installed for emergency response in that manufacturer instructions can be followed for maintenance or applicable standards?

Answer: Yes

Posted Jan 28, 2021

The following interpretation regarding Clauses 8.2.1.1, 8.2.1.4 and 8.2.1.5 of CSA Standard N293-12 (R2017), Fire protection for nuclear power plants, has been approved by the Members of the CSA Standards Technical Committee on *Fire Protection for Nuclear Power Plants (N293)*.

Question:

a) 8.2.1.1 applies to determining the extent of fire training that is appropriate (e.g. fire brigade vs specialist sitting at a computer).
b) 8.2.1.4 applies to everyone who gets fire safety training.
c) 8.2.1.4 is determined by the training needs analysis (TNA).
d) 8.2.1.4 is only for individuals who have been determined to need specific fire awareness training and is NOT the general expectation of staff and does NOT need to be covered by General training so everyone receives it.
e) 8.2.1.5 applies to all staff who can access the station should be trained on fire extinguishers, not just those expected to be competent in their use.

Answer:

(a) Yes
(b) Yes
(c) No (Clause 8.2.1.4 applies to all personnel and is NOT determined by TNA which determines what needs to be done over and beyond the minimum requirements)
(d) No
(e) Yes