

Distribution Transformer Subcommittee

Task force / Working Group Report

**2025 Spring
Denver, CO**

Document #: C57.12.32

Document Title: Enclosure Integrity

Chair: Dan Mulkey Vice-Chair: Jeremy Van Horn

Secretary: Audrey Siebert-Timmer

Current Draft Being Worked On: PC57.12.32 D1.5 Dated: March 2025

Meeting Date: March 25, 2025 Time: 8:00 AM CST

Attendance:	Members	<u>40</u>
	Guests	<u>36</u>
	Total	<u>76</u>

List of Members:

Alejandro Macias (CenterPoint Energy)
Alex Ayala (Power Partners)
Andrew Larison (Hitachi Energy)
Carlos Gaytan (Prolec GE)
Darren Brown (Howard Industries)
Douglas Craig (Richards Manufacturing Co.)
Dwight Parkinson (EATON Corporation)
Gary King (Howard Industries)
Gilbert Kozar (Northeast Transformer Services, LLC)
Ion Radu (Hitachi Energy)
James Gardner (Prolec GE)
James Ratty (Electronic Technology Inc.)
James Spaulding (Fort Collins Utilities)
Jared Bates (Oncor Electric Delivery)
Jeffrey Brooks (POWER Engineers)
Jeremy Van Horn (IFD Technologies)
Jerry Murphy (Reedy Creek Energy Services)
John Chisholm (IFD Technologies)
John Vartanian (National Grid)
Joshua Verdell (ERMCO)

Justin Minikel (EATON Corporation)
Kenneth Hampton (Baltimore Gas & Electric)
Martin Rave (IFD Technologies)
Mason Rush (Central Moloney Inc)
Tyler Morgan (Duke Energy)
Michael Thibault (Pacific Gas & Electric)
Michael Zarnowski (Carte International)
Miguel Plascencia (Pacific Gas & Electric)
Nabi Almeida (Prolec GE)
Noah Chesser (Oncor Electric Delivery)
Patrick Kozar (Northeast Transformer Services, LLC)
Pedro Salgado (Electronic Technology Inc.)
Ramadan Issack (American Electric Power)
Reinaldo Valentin (Duke Energy)
Robert Reepe (Georgia Power Co.)
Shelby Walters (Howard Industries)
Stephen Shull (BBC Electrical Services, Inc.)
Thomas Callsen (Weldy-Lamont Associates)
Thomas Dauzat (AEP)
Vinay Patel (Consolidated Edison Co. of NY)

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List of Guests:

Adam Klaponski (Carte international inc)
Alan Fujimori (Romagnole)
Ashwin Padmanaban Iyer (STP)
Benjamin Hershberger (Midwest Transformer)
Brian Conneighton (Cleveland-Cliffs)
Bruce Webb (Knoxville Utilities Board)
Didier Hamoir (Transformer Protector Corporation)
Fernando Duarte (EPRI)
Fernando Tirado (Prolec)
Hector Garza (Orto de Mexico)
Gilberto Garza (Prolec GE)
Huan Dinh (Hitachi Energy)
Hugo Murillo (The H-J Family)
Hugo Flores (Ermco)
Jake Draxton (Sherwin-Williams)
Janet Crockett (Fayetteville PWC)
Jim Cai (JSHP Transformers)
Joel Pacas (IFD Technologies)

Joel Schumack (Ameren)
Josh Arias-Garcia (Midwest Electric Transformer Services)
Ken Rieke (Sherwin-Williams)
Luka Peuc (Končar D&ST)
Martin Munoz (Orto de Mexico)
Miguel Garcia (Hitachi Energy)
Nicholas Manske (Oncor Electric Delivery)
Nicholas Post (WEC Energy Group)
Nihat Kosedagi (ERMCO)
Parry Lively (Tempel Steel)
Paul Weyandt (Schneider Electric)
Pragnesh Vyas (Cleveland Cliffs)
Rehan Ali (Siemens Energy)
Sanford Fong (Georgia Power Co.)
Stefan Schindler (Maschinenfabrik Reinhausen)
Stephen Wolbach (Alabama Power Company)
Thomas A Keels (kEElectric Engineering PLLC)
Yeounsoo Kim (JST Power Equipment)

Meeting Minutes:

1. Vice-Chair Jeremy Van Horn called the meeting to order at 8:00 AM CST, with Luke Grandbois acting as secretary.
2. Opening remarks and announcements
 - a. Attendance was taken using a QR code and Microsoft form.
 - b. Dan Mulkey and Audrey Siebert-Timmer could not attend the meeting.
3. Jeremy Van Horn reviewed IEEE SA Essential Patent Claims, Copyright Policy, & Participant Behavior. No issues were raised.
4. Membership changes were noted:
 - a. **Added: Jared Bates, David Rohrer, Tim Mentor, Fernando Meza**
 - b. **Removed: None**
5. Quorum was verified. The working group consisted of **68** members, requiring **35** for quorum. **37** members were counted at the start of the meeting. Attendance records later confirmed **40** members attended.
6. Jeremy Van Horn requested approval of the Spring 2025 Agenda. Mike Thibault made a motion, second by Marty Rave. Agenda was unanimously approved.

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7. Jeremy Van Horn requested approval of the Fall 2024 Minutes. Marty Rave made a motion, second by Mike Thibault for approval of the minutes. Minutes were unanimously approved.
8. Status of Standards:
 - a. C57.12.28 Standard for Pad-Mounted Equipment – Enclosure Integrity, Approved 2023
 - Expires: 12/31/2034
 - Status: Published May 7, 2024
 - b. C57.12.29 Standard for Pad-Mounted Equipment – Enclosure Integrity for Coastal Environments, Approved 2023
 - Expires: 12/31/2034
 - Status: Published May 7, 2024
 - c. C57.12.30 Standard for Pole-Mounted Equipment – Enclosure Integrity for Coastal Environments, Approved 2020
 - Expires: 12/31/2030
 - Status: Plan to request PAR Dec 2026
 - Target: begin ballot Nov 2029
 - d. C57.12.31 Standard for Pole-Mounted Equipment – Enclosure Integrity, Approved 2020
 - Expires: 12/31/2030
 - Status: Plan to request PAR Dec 2026
 - Target: begin ballot Nov 2029
 - e. C57.12.32 Standard for Submersible Equipment – Enclosure Integrity, Approved 2019
 - Expires: 12/31/2029
 - Par approved: 12/06/2023
 - Par Expires: 12/31/2027
 - Status: Draft 1.5
 - Target: begin ballot Nov 2026
9. Old business:
 - a. *Standards Clean up* – Jeremy Van Horn presented on behalf of Dan Mulkey suggested changes to the document:
 - In the Definitions clause, clarify the Note in Design tests to articulate the value of repeating design tests periodically.

There was discussion around the use of the terms “Design Test” and “Type Test” and how they are used in C57.12.80. Mike Thibault made a **motion**, seconded by Stephen Shull to accept the changes but with the term “Design tests” changed to “Enclosure Design Tests”. The motion passed with 29 for, 2 opposed, and 3 abstaining.
 - Add “Substrate” as a defined term with the following definition “The uncoated material that provides structural integrity to the enclosure.”

Jerry Murphy made a **motion**, seconded by Tom Dauzat, to accept the proposed change as is. The motion passed with unanimous approval.
 - In clause 5.6.6,
 1. remove “(QUV)” in the title of the clause,
 2. add a sentence stating “This test requirement shall apply only for coated surfaces on the exterior of the enclosure”
 3. Modify the first sentence to read “Three coated panels, fabricated per Figure 4, shall be tested per ASTM D4587, Cycle 2 (Ultraviolet Accelerated Weathering) for 504 hours utilizing either the FS-40 or UVB-313EL lamps...” in line with the C57.12.28-29 standards.

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A motion was made by Justin Minikle and seconded by Paul Chisholm to approve the clause as presented. The motion passed unanimously.

- In clause C.1 General, add a footnote to NACE stating “In 2021, SSPC and NACE were merged under the auspices of AMPP (Association for Materials Protection and Performance) standards program and accredited by ANSI on 05-01-2024. Their present policy is that revisions to published SPCC and NACE documents will retain the legacy numbering system.”

A motion was made by Tom Dauzat and seconded by Mike Thibault to approve the footnote as presented. The motion passed unanimously.

- b. *Task Force on 4.2.9 Flame Test* – Bruce Webb presented the findings from the task force looking at Clause 4.2.9. The task force recommended adding the following clause:
“Clause 4.2.9 Fire Resistance

The enclosure shall be constructed of fire-resistant material. Non-metallic enclosures shall be made from material having a flammability rating of V-0, 5VA per UL 94 (IEC 60695-11-10-20) testing methods.”

A motion was made by Tom Dauzat and seconded by Jerry Murphy to approve the clause as presented. The motion passed unanimously.

- c. *Task Force on Holiday definition* – Justin Minikel presented the following proposed definition to “holiday”:

“Holiday: A small, pinhole sized void or discontinuity in a coating that exposes the underlying material.

NOTE-Typically caused by errors in surface preparation or application of coating materials, holidays can create corrosion cells that reduce the life of a protective coatings system.”

A motion was made by Paul Chisholm and seconded by Gilbert Kozar to approve the clause as presented. The motion passed unanimously.

- d. *Impact Test* – Justin Minikel presented a proposed change to clause 5.5 Test Specimens by modifying the beginning of the clause to read as follows:

“Test specimens shall consist of panels of the same material composition used in production and employ a representative gauge thickness based on the typical production part. Test specimens shall be fabricated in accordance with Figure 3, Figure 4, Figure 5, and Figure 6 as to size and design. Quantity and type...”

A motion was made by Robert Reepe and seconded by Nabi Almeida to approve the clause as presented. The motion passed unanimously.

10. New Business

- a. *Fire Resistance Task Force Recommendation* – Bruce Webb presented a proposed new clause 4.2.10 with the following language:

“4.2.10 Non-Metallic Enclosure
Any non-metallic enclosure shall retain an outdoor suitability rating of f1 per UL 746C.”

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Tom Dauzat pointed out that for different plastics it is not always easy to find these ratings. A **task force** was formed to investigate further and provide an updated recommendation. The Task Force is chaired by Bruce Webb and consists of the following members:

- Bruce Webb - Chair
- Noah Chesser
- Mike Thibault
- Joel Pacas

- b. *Impact test in clause 5.6.4* – Jake Draxton led a discussion on the size of the indenter in C57.12.32 relative to the other Enclosure Integrity standards.

A **task force** was formed to investigate. The Task Force is chaired by Jake Draxton and consists of the following members:

- Jake Draxton – Chair
- Justin Minikle
- Vinay Patel

- c. *Insulating Liquid Resistance, in clause 5.6.5* – Jake Draxton led a discussion on the language of “using either method”.

There was discussion around the scratch method and the gouge method and how the gouge method is generally more telling. It was decided that Jake Draxton’s Task Force would increase its scope to include a proposal to modify the language from “using either method” to “using the gouge hardness method”.

- d. *Abrasion Resistance in Clause 5.6.8* – Jake Draxton led a discussion on the interpretation of “1000 g weight” with two-arm test rig.

It was decided that Jake Draxton’s Task Force would increase its scope to include a recommendation for wording to make it explicitly clear within the standard that the 1000 g weight is per arm.

- e. *Polls for document changes* – Jeremy Van Horn led a discussion on the group’s appetite to address comments that had previously been brought up, including revisiting the UV test method/requirements, adding a better color standardization, and consolidating some of the standards.

A **task force** was formed to investigate adding a better color standardization. The Task Force is chaired by Jeremy Van Horne and consists of the following members:

- Ken Rieke
- Alejandro Macias
- Jake Draxton
- Brian Karplonski
- Mike Zarnowski
- Patrick Kozar
- Justin Mininkle
- Dan Mulkey
- Jeremy Van Horne - Chair

11. Next meeting: October 21, 2025, in Bonita Springs, Florida, USA.

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- a. The following attendees requested membership and will be added to membership for the Fall 2025 meeting:
- Fernando Duarte (EPRI)
 - Fernando Tirado (Prolec)
 - Gilberto Garza (Prolec GE)
 - Huan Dinh (Hitachi Energy)
 - Hugo Murillo (The H-J Family)
 - Jake Draxton (Sherwin-Williams)
 - Jim Cai (JSHP Transformers)
 - Martin Munoz (Orto de Mexico)
 - Miguel Garcia (Hitachi Energy)
 - Nicholas Manske (Oncor Electric Delivery)
 - Pragnesh Vyas (Cleveland Cliffs)
12. The meeting was adjourned at 9:15 AM CST.

Submitted by: Luke Grandbois

Date: March 25, 2025