

# NEU Material and Technology Validation/Verification Program

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NEU Validation/Verification Program Director

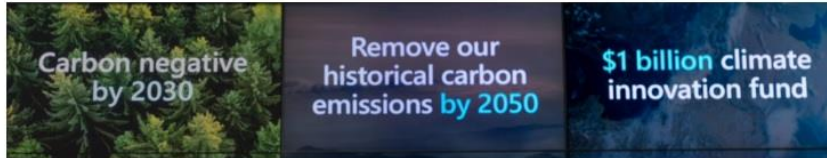
ACI Certification & Conformity Assessment Engineer



# NEU Material and Technology Validation/Verification Program

With increasing focus on climate change, there are many companies making claims in the marketplace to position themselves and their products as possible solutions to reducing carbon emissions.

Microsoft will be carbon negative by 2030



Incentives from industry/public



Governmental incentives



## Net-Zero Emissions Strategy for the Cement Sector

In September 2021, Governor Newsom signed Senate Bill 596 (Becker), which requires CARB, by July 1, 2023, to develop a comprehensive strategy for the cement sector in California to achieve a greenhouse gas emissions intensity 40% below baseline levels by 2035 and net-zero GHG emissions by 2045.

# NEU Material and Technology Validation/Verification Program

- As a result, this environmental information is increasingly being used for **decision-making** by individuals and organizations.
- However, individuals and organizations using this information want to know if the environmental information being claimed is **accurate and reliable**.
- In other words, they are looking for **assurance**.



# NEU Material and Technology Validation/Verification Program

Main goal is to secure the **trust** of customers, investors and consumers in the long term, and by using **reliable methods**, to separate plausible statements from insubstantial marketing promises.



# NEU Material and Technology Validation/Verification Program

NEU initiated its material and technology validation/verification program in 2022. This program will assess and validate/verify the claims of innovative and new products/technologies associated with low carbon cement and concrete production.

## Cement or Cementitious Materials

- Reduced Emissions Alternative Cements/Binders
- Supplementary Cementitious Materials (SCMs)
- Reduced-Emissions Cement Manufacturing with Alternative Fuels and/or Energy Sources

## Concrete

- Low-Carbon Footprint Ultra-High-Performance Concrete (UHPC)
- Low-Carbon Footprint Concrete
- Nanoparticles used in Concrete
- Admixtures used in Concrete
- Mineral or Fibrous Additives used in Concrete
- Concrete Mix Design Optimization

## Aggregates

- Manufactured Aggregates
- Recycled Aggregates

## Carbon Capture, Utilization and Storage (CCUS), Carbon Curing

## Concrete Reinforcement

- Low-Carbon Footprint Reinforcing Steel Bars
- Non-metallic Reinforcing Bars

## Artificial Intelligence / Machine Learning

## Others, subject to the approval of NEU Executive Director



# NEU Material and Technology Validation/Verification Program

NEU Validation/Verification program will operate under general requirements of:

**ISO/IEC 17029: “Conformity assessment — General principles and requirements for validation and verification bodies”.**

FINAL DRAFT	INTERNATIONAL STANDARD	ISO/IEC FDIS 17029
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ISO/CASCO Secretariat: ISO Voting begins on: 2019-07-10 Voting terminates on: 2019-09-04	<b>Conformity assessment — General principles and requirements for validation and verification bodies</b> <i>Évaluation de la conformité — Exigences et principes généraux pour les organismes de validation et de vérification</i>
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This draft is submitted to a parallel vote in ISO and in IEC.

**ISO/CEN PARALLEL PROCESSING**

MEMBERS OF THIS DRAFT ARE INVITED TO SUBMIT WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT IPRT'S RIGHTS OF PRIORITY THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

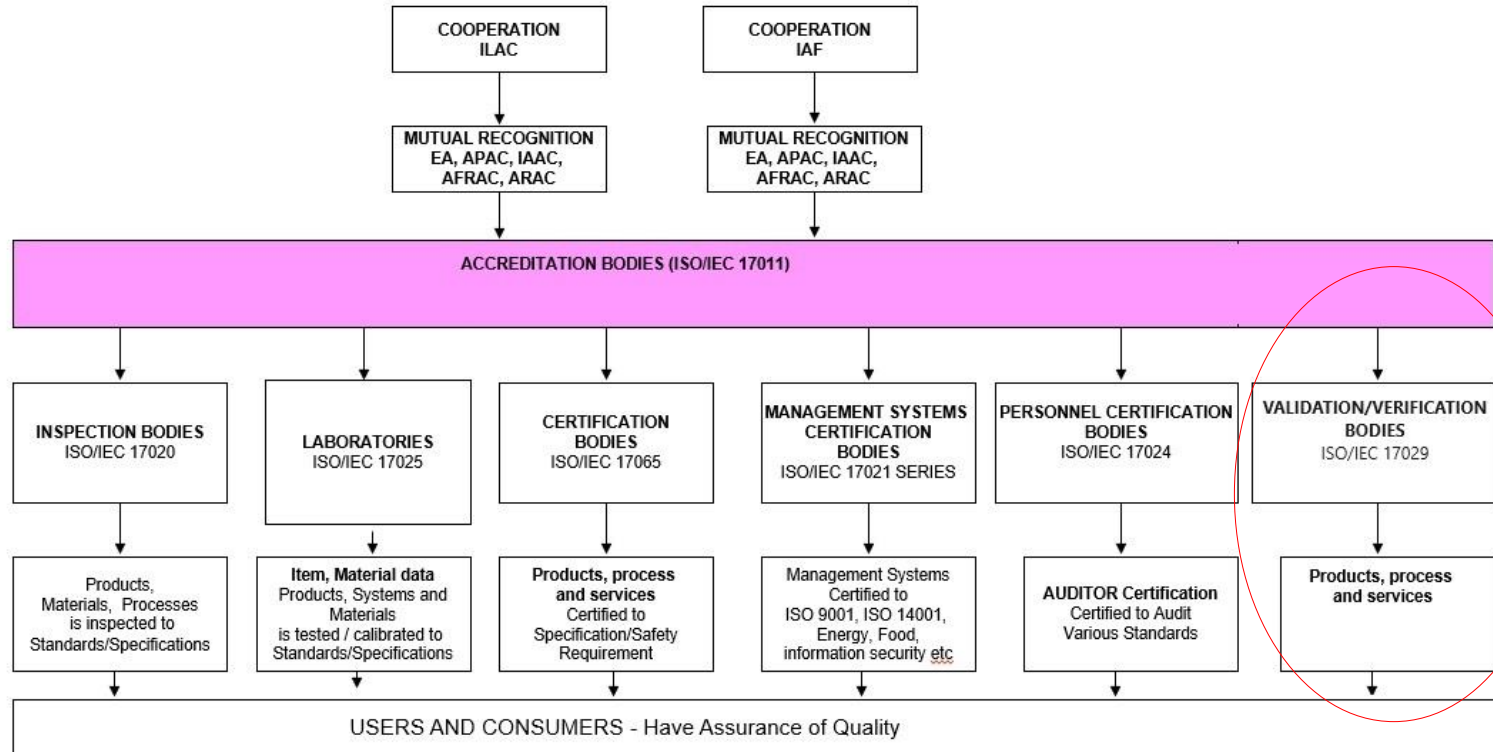
IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY BE UNDER CONSIDERATION FOR THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

Reference number: ISO/IEC FDIS 17029:2019(E)

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# NEU Material and Technology Validation/Verification Program



# NEU Material and Technology Validation/Verification Program

- In 2016, ISO/IEC saw a need to harmonize validation and verification activities as these terms were being used differently and with different requirements and meanings in several ISO Technical Committees.
- In October 2019, ISO/IEC 17029 was issued to provide a uniform basis for the verification and validation of statements and reports of all kinds. These include statements on the environmental performance of products and organizations, sustainability reports, comparative statements, ethical statements and many more.
- The primary seed document for ISO/IEC 17029 was ISO 14065, which was for validation and verification of greenhouse gas (GHG) emission assertions.

FINAL DRAFT

INTERNATIONAL STANDARD

ISO/IEC FDIS 17029

ISO/CASCO  
Secretariat: ISO  
Voting begins on: 2019-07-10  
Voting terminates on: 2019-09-04

**Conformity assessment — General principles and requirements for validation and verification bodies**

*Evaluation de la conformité — Exigences et principes généraux pour les organismes de validation et de vérification*

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IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNICAL, COMMERCIAL AND LEGAL PURPOSES, LOCAL, NATIONAL AND INTERNATIONAL STANDARDS MAY BE FOUND TO BE SUPERSEDED BY THE ADVICE OF THEIR NATIONAL STANDARDS BODIES TO WHICH REFERENCE MAY BE MADE IN NATIONAL STANDARDS.

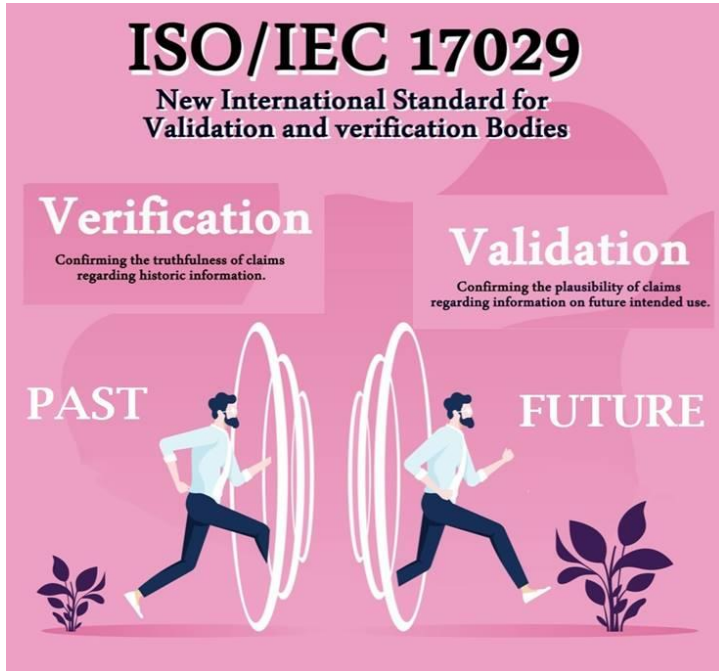
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# NEU Material and Technology Validation/Verification Program



\*IAF web site

- Validation and verification as conformity assessment are understood to be a **confirmation of reliability of information declared in claims**. Both activities are distinguished according to the timeline of the assessed claim.
  - **Validation** is applied to claims regarding an intended future use or projected outcome (confirmation of plausibility),
  - **verification** is applied to claims regarding events that have already occurred or results that have already been obtained (confirmation of truthfulness).

## SIMPLIFIED DEFINITION FOR VALIDATION & VERIFICATION



Confirmation of a claim (information declared by a client) through the provision of objective evidence.

## GOAL OF THE VALIDATION & VERIFICATION ACTIVITIES



Provide accurate and robust  
**ASSURANCE**, or give **confidence** to  
stakeholders, investors, consumers and  
interested parties by an independent third-party.

# NEU Material and Technology Validation/Verification Program

Validation and verification do NOT:

- result in a characterization (testing)
- provide examination (inspection)
- attest conformity for a defined period (certification).

While certifications and inspections focus primarily on conformance to standards and specifications, verifications and validations will assess individual claim's conformance to relevant criteria. This enables companies to bring their own strengths instead of focusing exclusively on conformity.

# NEU Material and Technology Validation/Verification Program

## ISO 17029 requirements:

- Impartiality and Confidentiality
- Risk management
- Minimum Personnel competency requirements
- Openness and fairness
- Responsiveness to complaints and appeals
- Internal audits, Management Reviews
- Corrective Action Process
- Documented Management System

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**ISO/CEN PARALLEL PROCESSING**

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT RECENT ACTS OF WHICH THEY ARE AWARE AND TO FURNISH SUPPORTING DOCUMENTATION.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION LEAD TO THE CONCLUSION, IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

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ISO/IEC FDIS 17029-2019(E)

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# NEU Material and Technology Validation/Verification Program

## Validation/Verification Process:

- Organizations may submit applications to the validation process to verify specific environmental or sustainability claims of their products.
- Validation/Verification Team members will be assigned to review the application.
- Upon acceptance of the initial application, a formal agreement will be established between NEU and the client, specifying the scope of the validation/verification process, criteria to be evaluated, fees, etc.

# NEU Material and Technology Validation/Verification Program

## Validation/Verification Process:

- Validation/verification Team will conduct the assessment:
  - Can the claim be verified/validated using an existing standard?
  - Does a new criteria need to be developed by an independent committee to validate/verify the claim?
- Indicating the degree of assurance that the team has in the environmental or sustainability claim:
  - level of assurance = degree of confidence in the claim
  - Limited assurance vs. reasonable assurance
- Report will be reviewed by independent reviewer(s).
- Final assessment is issued to the client (second party).

# NEU Material and Technology Validation/Verification Program

Validation / Verification Body Types:

## First Party

- Often called an internal audit. This is when someone from the organization itself will verify/validate the claim, for sole use of the company.

## Second Party

- Often conducted by customer or user of product/material, or a company itself to ensure claim is verified/validated by an independent organization.
- Service is privately provided to the requested party.



# NEU Material and Technology Validation/Verification Program

## Third Party:

- Includes publicly available information and public posting on third-party independent organization's web site.

## Notes:

- 1- NEU will initially focus on a Second Party process.
- 2- Report will be confidential between NEU and client, but client may choose to release the information at their discretion.

# NEU Material and Technology Validation/Verification Program

Key points to the NEU Validation/Verification Process:

- NEU will be compliant with internationally recognized Conformity Assessment standards.
- Impartiality, confidentiality, and fairness are top priority:
  - NEU membership is not required.
  - No discounts will be given.
  - All Validation/Verification Clients will be treated equally.
- NEU will not be:
  - Conduct laboratory work.
  - physical testing/inspections/certification.
- NEU is seeking Subject Matter Experts to serve on the Validation/Verification Teams. Send email to [info@neuconcrete.org](mailto:info@neuconcrete.org)

# THANK YOU!

 NEU: An ACI Center of Excellence for Carbon Neutral Concrete

 @NEUCarbonNeutralConcrete

 @NEUconcrete

# NEU Material and Technology Validation/Verification Program

- The requirements for the Validation/Verification process are provided in the following international standards:
  - ISO/IEC 17029:2019, Conformity Assessment – General principles and requirements for validation and verification bodies
  - CSA/ISO 14064-3:2020, Greenhouse gases – Part 3: Specification with guidance for the verification and validation of greenhouse gas statements
  - ISO 14065:2021, General principles and requirements for bodies validating and verifying environmental information
  - ISO 14066:2011, Greenhouse gasses – Competence requirements for greenhouse gas validation teams and verification teams