

Role of NIST Experts in ASTM Committees

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NIST and Standards Committees

- NIST is the Nation's physical measurement lab
- While NIST does not set standards, its role in committees is to provide objectivity to ensure that the standards have a sound technical basis and, often, NIST research makes the major contribution to the technical basis for the standards
- Staff members consult with their supervisors in deciding which, if any, committees they should join
- Some excellent researchers are not interested in standards committee participation (and would be unlikely to make good committee members)

NIST Perspective in Committees

- When NIST staff participate in committees, they represent the public interest in objectivity and sound measurement. (Note: Guest researchers, such as me, share this perspective)
- NIST does not represent the special interests of the producers of a product, nor of its commercial users; however, all parties usually benefit from NIST's participation in a standards committee

Why Do NIST Experts Participate in Standards Committees?

- They participate because they recognize the opportunity to make an effective contribution to the NIST mission
- They take pride in helping make the standards in their areas of expertise the best they can, appropriately, be
- They are recognized within NIST for significant standards contributions

When Does a NIST Expert Participate?

- Potential NIST experts often learn from peers that standards committee work can be slow and frustrating, and takes time away from research
- Later, many experts learn, also from peers, that the satisfaction of causing a standard to be developed, and seeing it put to use for human and national benefit, can be highly rewarding
- In general, experts recognize when appropriate committee participation is needed for their knowledge to be put to effective use
- Still later, a NIST expert's technical leadership may lead to a committee leadership position

How Many NIST People Participate in ASTM?

- NIST is the largest single contributor to ASTM committees
- About 180 members of NIST staff participate in ASTM committees
- In the building materials area, 6 members of a technical staff of 20 participate in ASTM committees -- cement, 3; paints and coatings, 2; and roofing materials, 1.
- Typically, each participant will participate in two or more subcommittees or task groups

Subjects of Building Material Standards Developed with NIST Input

- Paints and coatings
- Roofing materials
- Cement
- Concrete

Cement and Concrete Standards to Which NIST has Provided Input

- ASTM C1365, Standard for Phase Analysis of Portland Cement by X-Ray Diffraction
- ASTM C1366, Standard for Phase Analysis of Portland Cement by Light Microscopy
- ASTM C1157, Performance Specification for Structural Cements

A Possible Future Cement Standard?

- NIST has developed a concept for a standard for evaluating the performance of a portland, or other, cement based largely on computer simulation
- Starting from a detailed characterization of the cement at the particle level, the reactions and microstructure development in a cement paste or mortar, would be simulated and the engineering properties (e.g., flow properties, heat evolution, and compressive strength), would be predicted
- For those who are interested, the “virtual cement” concept will be discussed in a presentation on Thursday afternoon