

## Shaping an ASME Standard

ASME's Codes and Standards sector has taken the first step in developing a standard for verifying and validating engineering computer models. *Guide for Verification and Validation in Computational Solid Mechanics* was published a few months ago. The next step is to identify and define best practices. Completion of that step will enable the development of a formal standard in the future.

The document points out that computational solid mechanics is increasingly important in the development and testing of engineered systems from cars to aircraft and weapons. At the same time, the state of the art of V&V [that is, verification and validation] does not currently lend itself to writing a step-by-step performance code/standard.

The *Guide* outlines procedures for developing methods to verify engineering software and validate the results from models by comparing the results from simulations with experiments. The publication's purpose is to give those involved in computational solid and structural mechanics a common language, a conceptual framework, and general guidance for implementing the processes of computational V&V.

As part of the contribution to common language, the *Guide* defines "verification," for instance, as "the process of determining that a computational model accurately represents the underlying mathematical model and its solution. "Validation" is "the process of determining the degree to which a model is an accurate representation of the real world from the perspective of the intended uses of the model."

According to the document, verification and validation, taken together, "are the processes by which evidence is generated, and credibility is established, that computer models have adequate accuracy and fidelity for their intended use."

The publication also includes figures illustrating the verification and validation processes, and discussions of ideas to be considered in establishing a verification and validation program.

The publication, which contains just under 30 pages, is available from the Society, and designated as ASME V&V 10-2006.

The Guide was developed by Performance Test Code Committee 60. Like all Codes and Standards committees, the membership of PTC 60 includes a balance of representatives from industry, government, and academia. The industry members of PTC 60 include representatives from the auto and aerospace industries, and the government members are primarily from the Departments of Defense and Energy.

This ASME initiative builds on previous verification and validation work, including a guide for CFD practices, published by the American Institute of Aeronautics and Astronautics.

ASME V&V 10-2006 may be purchased at [www.asme.org](http://www.asme.org) or by calling 800-THE-ASME. Contact Ryan Crane P.E. at [craner@asme.org](mailto:craner@asme.org) with additional questions related to the PTC 60 committee activities.