



# United States National CAD Standard® - V5

a product of the National Institute of Building Sciences buildingSMART alliance™

## Foreword

Thank you for purchasing the United States National CAD Standard® (NCS or Standard). This standard is an important first step in coordinating the efforts of the building design and construction industry. By classifying electronic building design CAD data consistently, communication among design and construction project teams can be streamlined, resulting in cost savings and greater efficiency in the design and construction process. By adopting this Standard, you are making a wise choice for the future of your company or organization. Broad implementation of this Standard will significantly improve building design and construction service delivery to all clients.

Recognizing the evolving nature of computer technology, the National CAD Standard Project Committee (NCS Project Committee) is committed to the continuous growth and development of the Standard to keep pace with technology as it develops. The evolution of the Standard is dependent upon the participation of a broad cross-section of industry professionals. You are invited to contribute to the development of the Standard by joining the NCS Project Committee. For further information, visit the National CAD Standard website at <http://www.nationalcadstandard.org>.

This Standard is intended as a foundation for information sharing. Undoubtedly, it will not meet the needs of all users in all cases. To the extent possible, we urge you to classify your basic data according to the Standard, augmenting it only in those cases where your data cannot be sufficiently classified, organized or represented according to it. In this way, you can ensure that a baseline of your construction data can be freely exchanged with others who adopt the Standard. Moreover, the task of educating others about your particular customized data-classification or organizational system for CAD can be minimized.

**Note on Version 5:** To denote changes from Version 4, we have placed a delta ( $\Delta$ ) where material has been deleted and red text **where material has been added or revised**.

## New in Version 5

Below are highlights of the major revisions and additions to Version 5:

- New “Distributed Energy” Discipline Designators
- New Level 2 Resource Discipline Designator for “Real Estate”
- New “Abandoned” Status Field
- Expanded Discipline Designator listing for “Survey/Mapping”
- New Major and Minor Groups definitions added to the “Architectural, Electrical, Fire Protection, Interior, Mechanical, Plumbing, Resource, Structural, and Telecommunications Layer Lists”.
- Revised flow of CAD Layer Guidelines Module to clarify that the Layer Lists by Disciplines are simply examples of some of the commonly used layers and not an all-inclusive list of layers,
- Major and Minor Groups definitions from “Civil, Electrical, Mechanical, Plumbing, Resource, Structural, Survey/Mapping, and Telecommunications Layer Lists” made more generic to allow broader usage.
- Expanded allowable file extension characters to 4 characters to respond to changes in software application file extensions
- New reference symbols for “interior elevation indicator single and multiple views”, “azimuth indicator” and “3/32” architectural scale”
- Revised line thickness of “note leaders” reference symbol
- New line symbol for “electrical direct current”

- New identity symbol for “electrical interconnections with substations” and “electrical photovoltaic power”
- New “Appendix I – Implementation Guidelines”
- Eliminated obsolete “Appendix C, G and H”