

# Inside CSI

## AIA CAD Layer Guidelines and the NCS

**H**ave you ever wondered where the layer 'A-WALL...' comes from? The American Institute of Architects (AIA) *CAD Layer Guidelines (CLG)* have been around since about 1990, and are an essential part of the *U.S. National CAD Standard (NCS)*.

As their name suggests, these guidelines establish levels of layers in CAD drawings. There has always been a need for naming consistency to allow multiple users to effectively transfer and understand drawing information. The NCS hierarchy consists of five parts: the discipline designator, one major group, two optional minor groups, and an optional status field. These fields or groups are separated by hyphens. For example:

A-WALL-FULL-DIMS-N

The discipline designator is divided into two parts: Levels 1 and 2. The Level 1 discipline designator is mandatory, while the Level 2 is optional. These designators are prescribed and are not user-definable.

A

Next, the layer name has one major group, which is mandatory. This is composed of four

alpha-numeric characters prescribed in the layer list in greater detail:<sup>1</sup>

A-WALL

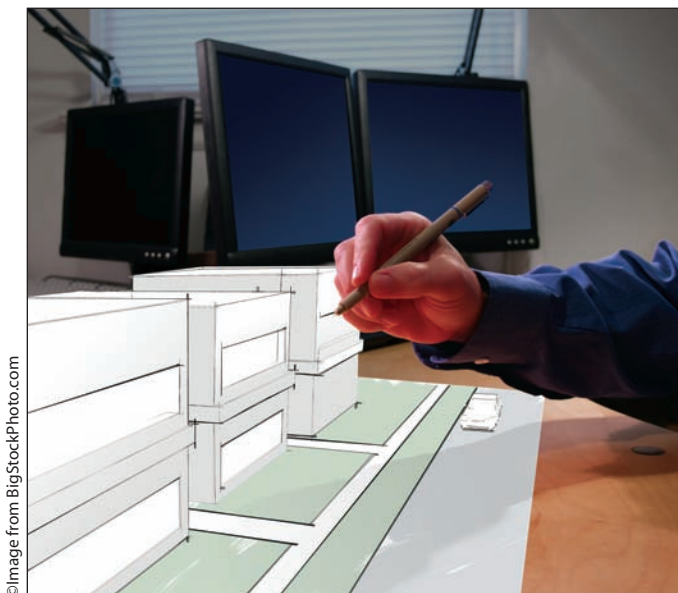
### Level 1 Discipline Designators

Level 1 Discipline Designators

- G-General
- H-Hazardous Materials
- V-Survey/Mapping
- B-Geotechnical
- W-Civil Works
- C-Civil
- L-Landscape
- S-Structural
- A-Architectural
- I-Interiors
- Q-Equipment
- F-Fire Protection
- P-Plumbing
- D-Process
- M-Mechanical
- E-Electrical
- T-Telecommunications
- R-Resource
- X-Other Disciplines
- Z-Contractor/Shop Drawings
- O-Operations



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*The continuing evolution of computer-assisted design (CAD) presents not only exciting new opportunities and streamlined efficiency, but also the potential for confusion and miscommunication. Relying on established guidelines like the U.S. National CAD Standard (NCS) can be helpful.*

This is then followed by one or two optional minor groups, which consist of four characters each. They help further explain the major group to which they are attached.

#### A-WALL-FULL-TEXT

While we have prescribed 565 minor groups, users can create their own if necessary. (When a user needs to do this, he or she must follow the strict guidelines specified in the *CAD Layer Guideline* module of the NCS.) An optional prescribed status field can then be added. Status fields allow the distinguishing of the data contained on the layer or phase of the work. For example, one can use the status field to indicate new work versus future work, indicate whether the items are not in the contract, distinguish the drawing phases, or indicate temporary work:

#### A-WALL-FULL-TEXT-N

For more information, visit the NCS Forums at [www.nationalcadstandard.org](http://www.nationalcadstandard.org) or [www.csinet.org/forums](http://www.csinet.org/forums).

#### Notes

<sup>1</sup> Discipline designators and major groups are not user-definable. Creating new major groups is a common mistake, and is prohibited by NCS.

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