



NCS BALLOT PREVIEW

VERSION 7

Overall Approach - V7 Update Cycle

After 20 years of content revisions, insertions and deletions, it became clear that the standard was in need of an overall editorial face lift. The NCS content no longer reads as “one voice”. Active and passive tenses along with different sentence structures and styles have been inserted with each update cycle. Additionally, some content, such as manual drafting, or historical content is no longer relevant or simply just does not apply anymore. So, for this ballot cycle, the NCS Steering Committee (NCS SC) decided to clean up the standard rather than revise its content.

To address this massive task an outside Subject Matter Expert, familiar with the NCS, was hired to suggest how to reorganize, clean up and clearly identify “required” from “informational” or “historical” content. The NCS SC then went through 8 months of review going over the SME’s suggestions and developed 20 recommended changes for the NCS Project Committee’s review and approval. The following slides provide a summary of the changes which will be balloted in late April.

Global Changes

- Replace references to the Uniform Drawing System, UDS, AIA CAD Layer Guidelines, and Tri Services Plotting Guidelines with reference to NCS as a whole to unify the NCS and reduce confusion
- Identify Required vs. Informational content
- Remove duplicate or conflicting content
- Remove references to “manual drafting” from all modules
- Move all background history to the “Appendix” section of the standard

Module 1

- Section 1.3.2 Discipline Designator
 - Establish that Level 2 Discipline Designators across a project set must be used for either building identifiers or discipline modifiers
- Section 1.3.2 Discipline Designator
 - Add a note to list of Level 1 Discipline Designators to establish that this the order for disciplines across a project set

1.3.2 Discipline Designator

The first component of the sheet identification format, the discipline designator, is based on the traditional system of alphabetical discipline designators, using either a single alphabetical character with a hyphen (Level 1) or two alphabetical characters (Level 2).

The discipline designator denotes the category of subject matter contained in the file or on the layer designated. A dash always follows the Level 1 discipline designator; a dash is not used when the Level 2 discipline designator is used.

LEVEL 1 DISCIPLINE DESIGNATORS

Discipline Designator Name Format

A - N N N

Level 1 Discipline Designator

A A N N N

Level 2 Discipline Designator

A

Module 1

- Section 1.3.4 Sheet Sequence Number – Clarify use of the same level/floor name across all disciplines
- Section 1.4.1 File Categories – Remove section

1.3.4 Sheet Sequence Number

The sheet sequence number is a two-digit number that identifies each sheet in a series of the same discipline and sheet type. Sequence numbering starts with 01; sheet number 00 is not permitted. The first sheet of each series is numbered **01**, followed by **02** through **99**. Sequence numbers need not be sequential, to permit future insertion of sheets during design. While many projects may not require more than a single digit, standardization of a two-digit sequence number allows for efficient electronic file sorting and facility management databases.

On plan sheets, it may be desirable to replicate the floor name within each discipline. This makes sheets **A-102**, **M-102**, and **E-102** the second floor plan for each of the various disciplines. This system may become cumbersome when basements and mezzanines or split-level plans are involved. Evaluate each project carefully before deciding to implement this option.

Sheet Sequence Name Format

A A N N N

Sheet Sequence Number

A A N N N - U U U

User-Defined Designators

A - 1 0 2 - R 1

A-102-R1 for a partially revised floor plan.

A - 1 0 2 - X 1

1.4.1 File Categories

The two broad categories of files, Library Files and Project Files, require consistent but different approaches to their file name format. Library Files should be named differently because the classification and indexing requirements are different.

1.4.1.1 Library Files

Library files are those used in many projects. They can be detail, schedule, text, database, symbol, border, and title block files. Δ Manufacturers, suppliers, vendors, and all associated parties who create Library Files for use on multiple projects shall create Library Files in full compliance with the United States National CAD Standard® drawing and naming conventions. The naming of these files shall follow either the MasterFormat™ or UniFormat™ file naming method as described below.

Module 1

- Section 1.4.2.1 Model Files vs. Sheet Files (overall concept) – Remove the AutoCAD terminology to keep the standard vendor neutral
- Section 1.5 File Management Recommendations – Remove the section as it is not relevant to CAD Standards

1.4.2.1 Model Files vs. Sheet Files (overall concept)

Model Files contain the 2D or 3D graphic representation of physical real world building items, things you would eventually be able to touch in the completed building (e.g. columns, walls, ductwork, piping, equipment, etc.). These components are drawn in "Model Space." The entire floor plan view, longitudinal section or elevation view is drawn in Model Files. All geometry is placed in XY location relative to a predetermined Benchmark coordinate as determined by the survey or the civil model drawing. Annotation in the model file should be limited to column line and building level identification on their own annotation layers. Typically "Paper Space" is not used in Model Files. Model Files are drawn at real world size. These files don't have title blocks or drawing borders and don't appear on the project drawing list. They are always referenced by a Sheet File. They are rarely, if ever, plotted by themselves. It is most convenient if the Model Files reside in a common folder (i.e. \acadref) and then this entire folder is considered the Model Set and is where all CAD reference files reside. Strict file naming rules govern the computer name of the Model File and the content allowed in it. The file name describes the content of the Model File making it easy to identify the content you need to attach as a reference file to the Sheet Files.

1.5 FILE MANAGEMENT RECOMMENDATIONS

Effective file management is an important part of an efficient design and production operation. Unless properly controlled, there will be no end to the quantity of CAD files that accumulate on a computer's disk drive during the course of a project. Computer operating systems provide a tool that carries the office metaphor into the electronic environment. This tool is the folder or directory.

1.5.1 Project Folders

There will usually be more than one project on a computer's hard drive at any point in time. Because the file name uses

Module 4

- Section 4.2.4.3 Sheet Layout – Remove text indicating drawing blocks position on sheet based on printed document
- Section 4.2.8 Dimensions – Fix dimensioning language to be less architecture specific

4.2.4.3 Sheet Layout

The drawing area is that portion of the sheet containing drawings, notations, key plans, schedules, and other graphic and text data necessary to illustrate the work. The sheet is divided into modules. Within each module is a drawing block containing graphic and textual information. Locate the most frequently used referenced drawing block at the lowest drawing module adjacent to the title or notation block. Add additional drawings in order of priority, from bottom to top and from right to left. Starting the drawings from the right to the left makes it easier to use partially filled sheets. This eliminates the need to open a heavy set of drawings all the way to the binding to refer to a few details drawn on the left-hand side of the sheets.

4.2.8 Dimensions

Dimensioning is defined as the act of incorporating numerical values into a drawing as a means of sizing various components and locating parts of a building. Dimensions must be accurate and adequate. Inadequate dimensions require clarifications during construction and possible loss of time.

The purpose of dimensioning is to locate each element of the construction. Each wall or part of a detail must be tied to a fixed point such as a column centerline or an existing or bearing wall. This applies to plans and the enlargements associated with them. For wall sections and their details, the horizontal reference is the floor elevation.

Care must be taken to show a single dimension only once in its proper location. Avoid the tendency to over-dimension.

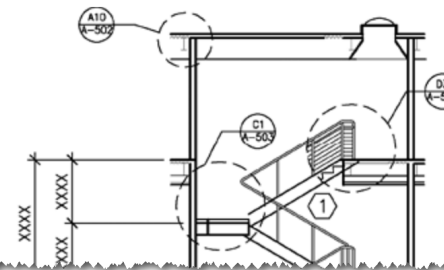
Module 4

- UDS Figure 4.3.5.1.3-1 – Fix terminology on photographs and when used in presentations with design content
- Section 4.3.9.2 Photographs – Fix text to include laser scanning as well as photography in drawings

4.3.5.1.3 Stair Sections

Stair sections should be tied to a reference grid such as a column number. Floor-to-floor heights, number of risers, and reference to enlarged details are also required. If possible, draw these sections adjacent to the plans associated with them. The first-level plan should be placed at the bottom of the sheet with subsequent levels arranged vertically above in an orderly succession. Clearly identify handrails, guardrails, and metal safety nosings.

Stair sections should show the number of risers, headroom dimension, and details for handrails and guardrails. Refer to *UDS Figure 4.3.5.1.3-1*.



- 1 SHOW THE LEAST NUMBER OF STEPS (MANUAL DRAFTING).
- 2 DO NOT SHOW REPETITIOUS IDENTICAL FLOORS ON MULTISTORY PROJECTS, EVEN IF THERE IS SPACE TO INCLUDE THEM.
- 3 SHOW INTERMEDIATE RAILINGS AT THE TOP AND BOTTOM OF STAIR AND ANY ATYPICAL CONDITIONS ONLY (MANUAL DRAFTING).



SOUTH ELEVATION
NO SCALE

UDS Figure 4.3.9.2-1 Photograph.

Photography may also be used to generate drawings of an existing building using special calibrated camera equipment that superimposes a grid of points on the image. The resulting image is compensated for film and perspective distortion by digitizing the points using special computer software.

Module 4

- Section 4.4 Mock-Up Drawing Set
 - Remove section as it is a process and not a CAD or BIM Standard

4.4 MOCK-UP DRAWING SET

 [DOWNLOAD SPREAD](#)

Mock-Up Set, Cartoon Set, Story Book Set, and Mini-Set are names referring to drawings (or sketches) usually reproduced at 1/4-size representing all the project sheets required for a phase of the construction drawings. The mock-up is either manually sketched or CAD generated.

The mock-up set assists in the planning of the entire drawing set by assigning graphic and textual information to specific sheets in the construction document set. It uses standards provided by *Drawing Set Organization*, *Sheet Organization*, and other UDS modules.

It is preferable that this reduced set of drawings be started at the onset of the design development phase or before. The step-by-step procedures for producing a mock-up follow.

Module 8

- **Module 8 - Code Conventions** – The module contains important information for meeting code requirements in design and construction but is focused chiefly on plan review and meeting code for the purpose of obtaining permits. Since it is not a CAD standard focused module, the Steering Committee recommends removing the module

Module 8 - Code Conventions

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Key:  = Section contains a downloadable Microsoft Excel document

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- 8.13 Appendix H - Plumbing Fixture Tabulation**

Appendix I

- **Appendix I - Implementation Guidelines** – This appendix shows one approach to adoption of the NCS, it is not the only approach and each user of the NCS should decide for themselves the best approach to implementation, the Steering Committee recommends removing the appendix

Ballot Timeline

April-July 2023

- NCS PC Ballot Comment Period – April 28-May 26
- NCS PC Comment Resolution Meeting – May 31 (2:00-4:00PM ET)
- NCS SC Ballot Preparation Period – June 5-June 13
- NCS PC Ballot Voting Period – June 14-July 12
- NCS SC Certify and Announce Voting Results – July 13-July 20

We look forward to your active participation!