Chapter

1

# Drawing Set Organization

## General

The responsibility for organizing the drawing set falls within the architect's project role. A standardized organizational structure for the drawing set allows users to assemble, locate, and retrieve information quickly and efficiently. A project drawing set typically serves two primary purposes: one, as a component of the procurement documents, it is used for competitive bidding or direct negotiation; and, two, as a component of the construction documents, it is used to build the facility. The construction drawing set may also include supplemental information, including addenda drawings, **modification drawings,** and clarification drawings.



## Set Content and Order

It is useful to establish a basic understanding of terms used throughout this book. A **drawing** is a graphic representation of information in a two-dimensional format used to indicate the configuration, location, and size of project components and elements. One or more drawings may be assembled onto a **sheet,** which can be a piece of paper or an electronic file. Drawing sheets are assembled into **subsets,** generally by design discipline, sometimes called **discipline sets.** These discipline sets are organized in a specific order. The drawing set may also include a **cover sheet,** General sheets, and Resource sheets, which are explained later in this chapter. Figure 1-1 illustrates the major subsets and their order within the drawing set.

### Subsets (Discipline Sets)

The subset is the heart of the organizational structure for the drawing set. The U.S. National CAD Standard (NCS) identifies standard drawing subsets and prescribes their order within the drawing set. If a cover sheet is used, this is the first sheet in the drawing set. It may or may not include sheet identification. (Refer to Chapter 2, "Sheet Organization," for information about the layout of a cover sheet and the related use of sheet identification.) The broad scope subsets, such as General, Architectural, Mechanical, and Electrical, may be broken down into narrow scope subsets, such as Architectural Demolition or Architectural Site. The NCS does not prescribe the order of subsets when broad and narrow scope subsets are used together. The focus of the subset should be used to determine the order.

While most subsets represent design disciplines, the General sheet information pertains to all disciplines and Resource sheet information represents information that are not be part of the contract documents.

### General Sheets

General sheets, sometimes called "G-sheets," are the first subset within the drawing set. Information that appears on these sheets applies to all sheets in the drawing set. These sheets may

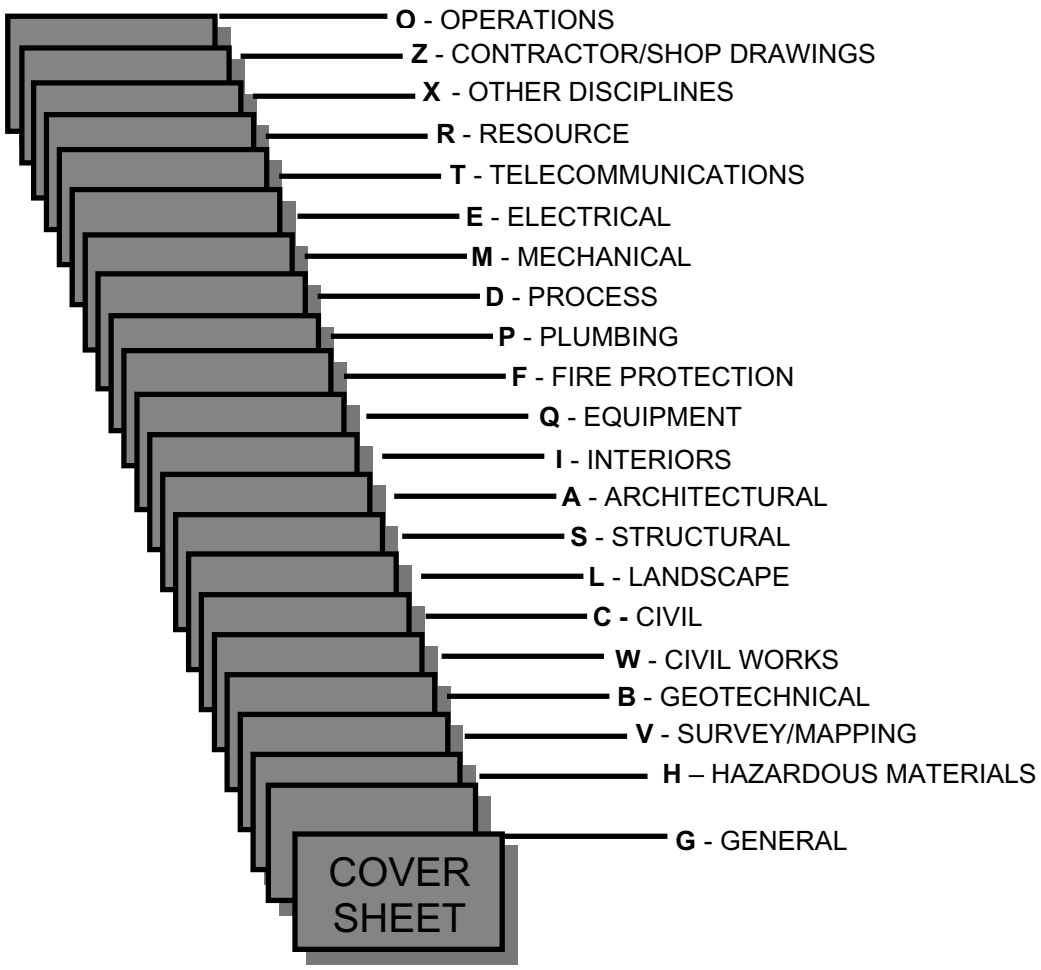


**Figure 1-1:** Typical Drawing Set Order

***FYI:*** The discipline designator was first called the "discipline code" by the AIA in its earlier versions of the CAD Layer Guidelines, but it was changed to the "discipline designator" to match CSI Uniform Drawing System terminology.

include code information, drawing sheet index, symbol legend, drawing sheet logic, general contract information, and other project information. Many jurisdictions are now requiring a list of "special inspections," as required by Chapter 17 of the International Building Code, to be included on a General sheet with the other code information for the project. Most firms produce a standard series of G-sheets and edit them for each project, saving time and ensuring that important information is always included in the drawing set. Figure 1-2 illustrates a typical G-sheet for a project.

### Resource Sheets

Resource sheets are typically the last subset in a construction drawing set and may include information about existing conditions or new construction related to the work. Information contained on these sheets is typically important information to enable coordination but is not a part

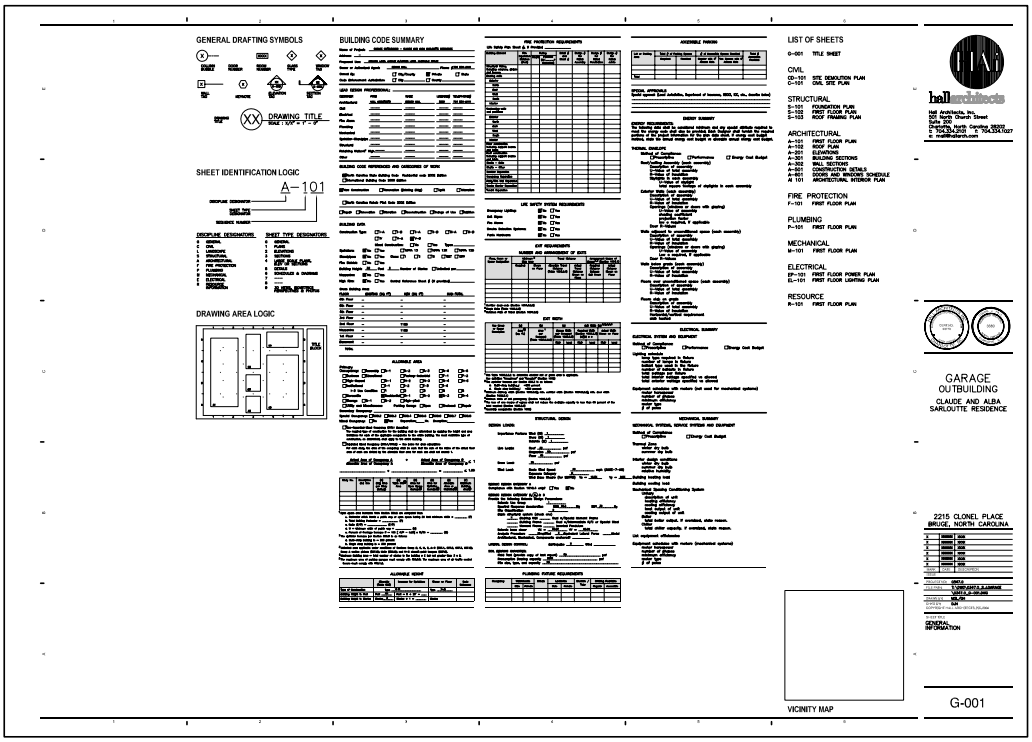


**Figure 1-2:** Typical G-sheet

of the contract work. Resource sheets are the graphic equivalent to "Available Information" found within the project manual, and, as a result, these two documents should be coordinated. Some typical uses of these sheets may include kitchen equipment furnished by others; campus site information; drawings showing concealed conditions, such as existing footings or hazardous materials; and project information, such as technical subsurface boring locations, site conditions survey, or even photos of existing conditions.

## Sheet Identification

Sheets are identified using a format that provides additional information about the contents of the sheet. The preferred format is the **standard sheet identification.** The standard sheet identification includes the **discipline designator, hyphen, sheet type designator,** and the **sheet sequence number.** However, on small projects, the architect may choose to use the **abbreviated sheet identification.** These two formats should not be mixed within a drawing set. The sheet identification includes a minimum of three sheet identification components. Both identification formats indicate the discipline set to which the sheet belongs, a hyphen, and a sheet sequence number, while the standard sheet identification also includes the sheet type designator. **User-defined** designators may also be included as a suffix to both the standard sheet identification and the abbreviated sheet identification formats.

### Discipline Designator

The first component of the sheet identification is the discipline designator. The discipline designator is composed of one or two alphabetic characters. The Level 1 discipline designator includes


**FIGURE 1-3**
Two Formats of Discipline Designator

the **discipline character** indicating the sheet discipline. In a Level 2 discipline designator, a second alphabetic character is added, which acts as the **modifier character** to the discipline character. Both Level 1 and Level 2 discipline designators are followed by a hyphen (-). This is discussed in further detail in the FAQ at the end of this chapter. Figure 1-3 illustrates the two formats for discipline designators.

***FYI:*** The use of a hyphen after the Level 2 discipline designator was added as a ballot item in NCS version 2. Prior to that, only Level 1 discipline designators were followed by a hyphen as a placeholder.

Appendices A and B include lists of sheets incorporating Level 1 and Level 2 discipline designators, respectively. Level 1 and Level 2 discipline designators may be used together within a drawing set or subset for each discipline. Appendix A of the UDS Drawing Set Organization Module includes the assigned modifier characters for each discipline character, some of which are shown in Figure 1-4 for Level 2.

### Sheet Type Designator

The second component of the standard sheet identification is the sheet type designator, which is a single numeric character representing the predominant drawing view on the sheet. While recommended, using drawings of the same view (plan view, sectional view, etc.) on a single sheet is not always practical. The NCS allows placement of multiple drawing types on a sheet for greater efficiency. When this is done, the sheet type designation should be determined by the predominant drawing type, and the sheet title may include the name(s) of other drawing types that appear on the sheet, i.e., "ROOF PLAN AND DETAILS." Figure 1-5 illustrates the sheet type designators and the predominant information for each.

| Designator | Description | Content |
|---|---|---|
| AS | Architectural Site | |
| AD | Architectural Demolition | Protection and Removal |
| AE | Architectural Elements | General Architectural |
| AI | Architectural Interior | |
| AF | Architectural Finishes | |
| AG | Architectural Graphics | |

**FIGURE 1-4**
Level 2 Discipline Designators


A = alphabetic character
N = numeric character

| Sheet Type Designator | Description |
|---|---|
| 0 | General (symbols legend, notes, etc.) |
| 1 | Plans (horizontal views) |
| 2 | Elevations (vertical views) |
| 3 | Sections (sectional views, wall & stair sections) |
| 4 | Large Scale Views (plans, elevations) |
| 5 | Details |
| 6 | Schedules and Diagrams |
| 7 | User-defined (for types that do not fall in other categories) |
| 8 | User-defined (for types that do not fall in other categories) |
| 9 | 3D Representations (isometrics, perspectives, photographs) |

**FIGURE 1-5**
Sheet Type Designators

Sheet types 7 and 8 are indicated to be user-defined. There is no single purpose for these sheet designators, but there are several that are commonly used. For example, on small projects, when the architect wants to include the project **specifications** on the drawings, one of these user-defined sheet types may be used for this purpose. The user-defined sheet types may also be designated to indicate drawings representing potential project alternates. As an example of this use, an alternate architectural floor plan may be shown on sheet A-701 and the related electrical plan for the alternate may be shown on sheet E-701. In this case, "7" indicates an "alternate" sheet use, and "01" indicated it is the first sheet in this sequence. Depending on the specific project requirements, the architect may find other purposes for these user-defined sheet types.

### Sheet Sequence Number

The final component used in the sheet identification is the sheet sequence number. This is a two-digit numeric character that represents the sequential sheet number in each of the sheet types within each discipline designator. The sequence number begins with 01 and can extend through 99. The NCS allows the user to identify the sheet sequence number in a nonconsecutive manner, thereby leaving room for sheets to be added in the future. Therefore, the architect could identify sheets in a sequence as A-110, A-120, A-130, and so on. Figure 1-6 illustrates the sheet sequence number.

### User-Defined Designators

The NCS also allows for user-defined identifiers to be used in conjunction with both the standard sheet identification and the abbreviated sheet identification formats, as well as on supplemental

***FYI:*** For most projects, the Level 1 sheet identification alone works just fine. This should be your starting place. Then you can add Level 2 sheet identification and user-defined designators if needed for the more complex portions of the drawing set.

The architect can then work with his or her consultants to ensure that the drawing set sheet identification is consistent throughout the set. If you chose to use user-defined designators, this will require additional coordination.


A = alphabetic character
N = numeric character

The sheet sequence number identifies each sheet in a series of the same discipline and sheet type.

The first sheet of each series is numbered 01, followed by 02 through 99

**FIGURE 1-6**
Sheet Sequence Number

drawing sheets. These designators are considered a suffix to the base sheet identification and appear as the last component of the sheet identification. When selecting the order of the drawing sheets in the discipline set, the user-defined designator may dictate ordering. For example, the architect may wish to order the sheets by project phase. Thus, sheets with a user-defined designator of "P1" for "Phase 1" may be grouped together, while a modification to a drawing may have a user-defined designator of "R1" for "Revision 1" and may simply be included after the original drawing.

Note that the NCS does not specifically state when user-defined designators should be separated from the sheet sequence number by a hyphen. Some guidance is provided in Appendix C of the UDS Drawing Module, which includes examples of sheet identification with user-defined designators. Some of the examples, such as addenda drawings, are indicated to be provided with a hyphen (such as sheet A-101-AD). Other examples, such as sheets in projects with different buildings, are indicated without the dash (such as sheet A-1011 or A-101A). Other examples in Appendix C appear to conflict with the format explanation given earlier in the module (an example in the module indicates a revised drawing should be identified as A-101-R1; Appendix C indicates it should be identified as A-101R1). It appears that further clarification will be needed in future NCS updates. Until then, we recommend using a dash after the sheet sequence number whenever the user-defined designator begins with a numeral (this will help to differentiate it from the numerals in the sheet sequence number). Figure 1-7 shows a few examples of user-defined designators.

### Standard Sheet Identification

The standard sheet identification includes all four sheet identification components and may also use Level 1 or Level 2 discipline designators or even a combination of both. Figure 1-8 gives a sample sheet index for these two levels.

### Abbreviated Sheet Identification

The abbreviated sheet identification includes only the Level 1 discipline designator, hyphen, and the sheet sequence number. This form of sheet identification is suggested only for small projects; hence, it may be found on projects such as small single-family residential projects. The use of the abbreviated sheet identification on commercial projects of any scale is strongly discouraged.

A A - N N N - **U U U**

**User-defined Designator**

**Sample Drawings User-defined Designators (Phases)**

| Sheet | Sheet Title |
|---|---|
| G-001 | Title Sheet |
| C-101 | Civil Site Plan |
| S-101-A | Foundation Plan |
| S-102-A | Floor Framing Plan Phase A |
| S-102-B | Floor Framing Plan Phase B |
| S-103-A | Roof Framing Plan Phase A |
| S-103-B | Roof Framing Plan Phase B |
| A-101-A | Floor Plan Phase A |
| A-101-B | Floor Plan Phase B |
| A-102-A | Roof Plan Phase A |
| A-102-B | Roof Plan Phase B |
| A-201-A | Elevations Phase A |
| A-201-B | Elevations Phase B |
| A-301-A | Building Sections Phase A |
| A-301-B | Building Sections Phase B |
| P-101-A | Plumbing Plan Phase A |
| P-101-B | Plumbing Plan Phase B |
| EP-101-A | Power Plan Phase A |
| EP-101-B | Power Plan Phase B |
| EL-101-A | Lighting Plan Phase A |
| EL-101-B | Lighting Plan Phase B |

**Sample Drawings User-defined Designators (Quadrants)**

| Sheet | Sheet Title |
|---|---|
| A-101-NE | Floor Plan North East Quadrant |
| A-101-NW | Floor Plan North West Quadrant |
| A-101-SE | Floor Plan South East Quadrant |
| A-101-SW | Floor Plan South West Quadrant |
| A-102-NE | Roof Plan North East Quadrant |
| A-102-NW | Roof Plan North West Quadrant |
| A-102-SE | Roof Plan South East Quadrant |
| A-102-SW | Roof Plan South West Quadrant |

**Sample Drawings User-defined Designators (Buildings)**

| Sheet | Sheet Title |
|---|---|
| A-101-A | Building A – First Floor Plan |
| A-201-A | Building A – Exterior Elevations |
| A-301-A | Building A – Building Sections |
| A-401-A | Building A – Wall Sections |
| A-101-B | Building B – First Floor Plan |
| A-201-B | Building B – Exterior Elevations |
| A-301-B | Building B – Building Sections |
| A-401-B | Building B – Wall Sections |
| A-501-B | Building B – Construction Details |

**Figure 1-7**
User-Defined Designators

## File Naming

The NCS identifies two broad categories of files, **library files** and **project files.** Library files are those containing information that may be incorporated into multiple projects, such as standard details, and then modified for the specific requirements of the project. Project files are project-specific and are organized by file types. These file types can include model, detail, sheet, schedule, text, database, symbols, border, and title block.

**Sample Sheet Index Level 1 and 2 Discipline Designators Combined**

| Sheet | Sheet Title |
|---|---|
| G-001 | General Information |
| CD-101 | Site Demolition Plan |
| C-101 | Civil Site Plan |
| S-101 | Foundation Plan |
| S-102 | First Floor Framing Plan |
| S-103 | Second Floor Framing Plan |
| S-104 | Roof Framing Plan |
| A-101 | First Floor Plan |
| A-102 | Second Floor Plan |
| A-103 | Roof Plan |
| A-201 | Elevations |
| A-301 | Building Sections |
| A-302 | Wall Sections |
| A-501 | Construction Details |
| A-601 | Doors and Windows Schedule |
| AI-101 | Architectural Interior Plan |
| F-101 | First Floor Fire Protection Plan |
| F-102 | Second Floor Fire Protection Plan |
| P-101 | First Floor Plumbing Plan |
| P-102 | Second Floor Plumbing Plan |
| M-101 | First Floor HVAC Plan |
| M-102 | Second Floor HVAC Plan |
| EP-101 | First Floor Power Plan |
| EP-102 | Second Floor Power Plan |
| EL-101 | First Floor Lighting Plan |
| EL-102 | Second Floor Lighting Plan |
| E-601 | Electrical Schedules |

**FIGURE 1-8**
Level 1 and Level 2 Sample Sheet Index

Most library files are organized by work results (MasterFormat 2004) or by construction elements **(UniFormat).** However, because UniFormat is currently undergoing a major update, and we anticipate significant changes in the organizational structure to reflect all construction in the next several years, it is recommended that most firms consider organizing their library files by MasterFormat 2004 at this time. The naming convention uses the six- or eight-digit MasterFormat number with a three-character user identifier. The user-defined identifiers may be an alphanumeric series of characters that match the firm's reference keynoting system, or a simple sequence number. Below are a few examples of typical library file names:

081113-01: Hollow Metal Frame—Head
081113-01A: Hollow Metal Frame—Head
081113-02: Hollow Metal Frame—Jamb
081113-03: Hollow Metal Frame—Sill

The naming convention for project files varies depending on the file type. However, most firms that use project files use the file name to indicate location of drawings on project drawing sheets.

Therefore, a file name of A-502-C2.dwg would represent a drawing (AutoCAD file) located at drawing area coordinate C2 on sheet A-502.

## Implementation Issues

We recommend the NCS format requirements included in the UDS Drawing Set Organization Module be the first portion of the standard to be adopted during the NCS implementation process for most firms. This is because most of the requirements can be adopted very easily, with little impact on current drawing office procedures. In addition, the time needed to incorporate the formats into drawing sets will usually result in minimal disruption and downtime for the workplace.

Organizing the disciplines in the drawing set according to the hierarchy in the UDS Drawing Set Organization Module should be the first step taken during the NCS implementation process. It is a good place to start because the hierarchy was originally based upon an order common and familiar to many workplaces. Thus, most offices will require only very minor adjustments to the drawing set order currently in use. A benefit to adopting this component early is that other than incorporating the same alphabetic characters used for discipline designators, only a few other changes need to be made to the sheets themselves.

Once proper organization of the set into subsets has been adopted, the next component to implement is sheet identification. We recommend using only the standard sheet identification format, no matter what size the project. This will require incorporating sheet type designators into the workplace, which will usually take a little more effort than the previous step, because some offices are either not familiar with them or are using a different sheet type designator system. However, the time and cost associated with the learning curve to adopt the sheet type designators is minimal, and most workplaces should be able to make the adjustment without much more discomfort than the effort needed to overcome the psychological hurdle associated with the change. Moreover, sheet type designators provide many benefits, and the positive impact they make on the organization of drawing sets is well worth the investment.

The next component to adopt is among the simplest of all: the sheet sequence number. Again, this is quite easy, as most offices only need refrain from identifying sheets with “00” numbers such as A-100, A-200, A-300, and so on.

The UDS Drawing Set Organization Module includes the entire electronic file-naming requirements in the NCS. Adopting this component from the module will probably be the most difficult step for most offices, because many workplaces are using systems they have grown very accustomed to, or that are formatted very differently from those in the module. If this issue is a concern, it will probably be better to delay this step until a little later in the implementation process. (For more information about incorporating the NCS into the workplace, refer to Chapter 11, “Implementation.”)

## Review of Key Concepts in this Chapter

1. The UDS Drawing Set Module provides a standard for the ordering of the discipline sets within a drawing set.
2. The standard sheet identification format uses a four-component structure to identify the sheet.
3. User-defined designators may be used with standard sheet identification for project phase, building quadrants, and many other purposes.
4. The use of a discipline designator is common to sheet identification, file naming, and CAD layer naming.
5. Formats in the UDS Drawing Set Organization Module should be among the very first to adopt during the NCS implementation process.

## Frequently Asked Questions

**Q:** ***Is it okay to mix Level 1 and Level 2 discipline designators in the drawing set?***

**A:** Yes, sheets in the drawing set can be identified with both Level 1 and Level 2 discipline designators (a sample sheet index is shown in Figure 1-8 and Appendices A and B).

**Q:** ***Because of sheet size limitations, some of our designs for facilities with large footprints need to be separated into different parts per floor. What is the best way to identify the sheets for projects like this?***

**A:** Large buildings with multiple floors are similar to projects with multiple buildings, so you can break the drawing set into subsets with user-defined designators. An example of a sheet identification system worth considering for these types of projects is as follows:

A-101: First Floor Plan (This overall plan and overall plans of the other floors could be drawn at 1/16″ or 1/32″ = 1′–0″.)
A-101A: First Floor Plan—Part A (This plan and the other "parts" could be drawn at 1/8″, or 1/4″ = 1′–0″.)
A-101B: First Floor Plan—Part B
A-101C: First Floor Plan—Part C
A-102: Second Floor Plan (overall plan of the second floor)
A-102A: Second Floor Plan—Part A
A-102B: Second Floor Plan—Part B
A-102C: Second Floor Plan—Part C

Please note: When user-defined designators are used, we strongly recommend separating them from the sheet sequence number with a hyphen if the first character in the user-defined designator is a numeral (use A-101-1 instead of A-1011). This will help to avoid confusing it with the sheet sequence number.

**Q:** ***When should an abbreviated sheet identification format be used to identify sheets?***

**A:** The NCS allows the use of two formats for sheet identification: standard sheet identification and abbreviated sheet identification. Standard sheet identification includes the Level 1 or Level 2 discipline designators, the hyphen, the sheet type designator, and the sheet sequence number. Abbreviated sheet identification only uses the Level 1 discipline designator and a sheet sequence number. That said, we see no good reason to use the abbreviated sheet identification format, except on very small residential projects, and discourage workplaces from using it.

The main problem with two sheet identification formats is that the NCS doesn't provide clear directions for using one system or the other. The UDS Drawing Set Organization Module does hint at using standard format for large, complex projects, and abbreviated format for small projects. However, the NCS doesn't say that drawing sets can't have both formats; neither does it define what is small and what is large. What about medium-sized projects? How are users supposed to know when to use a specific format? Using only the standard sheet identification format will eliminate this confusion and ensure that each drawing is formatted the same no matter what size the project is. This will result in more consistent drawing sets and a drawing standard that will be easier to enforce.

The standard sheet identification format will work very well on one-sheet projects. For example, when an architectural project that includes a plan can be drawn entirely on a single sheet, it can be identified as sheet A-101. This methodology works for all the other disciplines, also. We hope to see the abbreviated sheet format removed from future versions of the NCS.

**Q:** ***The configuration of the floor plan of a building we are designing is so large that we need to locate Parts A, B, and C of the floor plan on separate sheets. Are the drawings of Parts A, B, and C considered large-scale views that need to be located on a sheet type designator 4-series (Enlarged Plans, Elevations, or Sections that are not details)?***

**A:** According to the UDS Drawing Set Organization Module, the intent of large-scale views is to provide more detailed information than can be accommodated at smaller scales. Somewhat surprisingly, one of the best places to find an answer for a question like this is in the UDS Drafting Conventions Module, which states that the intent of large-scale plans is to provide more detailed information for spaces such as auditoriums, kitchens, laboratories, stairwells, toilets, toilet rooms, elevator shafts, and mechanical and electrical rooms. When it becomes necessary to break a plan into larger-scale plans in order to better identify the overall layout of rooms, doors, windows, detail references, dimensions, and so on, it is okay to locate these types of drawings on a sheet type designator 1-series sheet (Plans). The UDS Drafting Conventions Module also mandates that the division between the different areas on the plans needs to be delineated with **match lines** and a **key plan.**

**Q:** ***Now that NCS version 3.1 requires the use of a hyphen between the Level 2 discipline designator and the sheet type designator, we cannot fit 3/32″ text of the sheet identifiers in the bottom half of reference symbols, such as detail indicators, elevation indicators, and section indicators. This is especially a problem when our sheets need to be identified with user-defined designators. What do you suggest?***

**A:** Unfortunately, when the Level 2 "hyphen amendment" was incorporated into the NCS, results like this were ignored by the NCS Project Committee (our concerns about this very issue fell on deaf ears). There are several options to resolve this, including:

1. Compress the horizontal proportion of the 3/32″ text height (will have a very negative affect on readability; compressed text will often not fit in the symbol either).
2. Increase the diameter of the reference symbol to accommodate the additional character (will require more room in drawing blocks and will not be consistent with size of other reference symbols; also does not comply with the NCS).
3. Reduce text height to less than 3/32″ (will have a very negative affect on readability, especially if text-wrapping is used; also does not comply with the NCS).

Our recommendation is to break the circle (bubble) to allow the characters to extend outside the symbol. (This does not comply with the NCS, either, but it is a better option than the others.)

**Q:** ***The Level 1 discipline designator and the Level 2 discipline designator can both be used to name sheet files—but can they both be used to name model files?***

**A:** According to the UDS Drawing Set Organization Module, the first character of a model file name is the single-letter discipline designator, and the second character is the hyphen, which acts as a placeholder. This implies that Level 2 discipline designators are not allowed. However, since the model file-naming format also allows user-defined prefixes, we see no reason why Level 2 discipline designators shouldn't be used.

**Q:** ***Where do we locate partition drawings? Are they sections, large-scale views, or details?***

**A:** There are two good options for partition drawings:

*OPTION 1*

1. Reference the partitions on the plans with wall type indicators, as indicated in the sheet type designator 6-series sheets (Schedules and Diagrams) portion of the UDS Drafting Conventions Module.
2. Include a partition schedule in the sheet type designator 6-series sheets (Schedules and Diagrams). An example of a partition schedule is not included in the NCS, but it won't take much imagination to create one using the UDS Symbols Module for guidance. A typical partition schedule will need a **heading** ("Partition Schedule") and will often contain columns for a Mark, Detail, Fire Rating Label, and Notes. The Detail column should include a detail reference for each partition type, similar to the way head, jamb, and sill details are referenced in a door and frame schedule.

3. Partition details are typically viewed as partial horizontal sections or full-height vertical sections. If there is room in the drawing area of the same sheet the partition schedule is on, you can locate the details there (different drawing types on the same sheet are allowed). If you need to locate the details on another sheet, use sheet type designator 5-series sheets (Details) for partial sections and sheet type designator 3-series sheets (Sections) for full-height vertical sections.

*OPTION 2*

1. Reference each partition on the plan with either a section indicator symbol or, if space in the **drawing area** is limited, with the detail indicator for small conditions symbol (refer to the UDS Symbols Module).
2. Detail each partition as a full-height vertical section on a sheet type designator 3-series sheet (Sections); or, if room in the drawing area is available, the sections could be included on the same sheet with the floor plan.

**Q:** ***What are the Civil Works and Operations disciplines used for?***

**A:** Each of these disciplines was incorporated into version 2.0 of the NCS. According to the discussion by members of the NCSPC at the time, the intent for Civil Works discipline (W-series sheets) was for large scale civil work or existing conditions outside project limits; or for civil projects "that could be seen from an airplane at 30,000 feet." This was quite controversial because no other discipline is subdivided according to size or existing conditions. Another way to analyze the content of the Civil Works discipline is for use on larger civil projects within a public right-of-way such as highways and street utilities. These explanations are not in the UDS Drawing Set Organization Module. We still disagree with the NCSPC about the decision to include Civil Works as a separate discipline from the Civil discipline in the NCS because there is no clear definition when to use the C-discipline, and when to use the W-discipline.

The argument for including the Operations discipline (0-series sheets) in version 2.0 of the NCS was that it was needed for data for facility management and operation purposes. There is no explanation about the use of this discipline in the UDS Drawing Set Module either.