

1 Purpose of this Standard

The purpose of this standard is to provide specific details in the secure management of modifiable files within the engineering sector. Security and chain of custody of these files is dependent on the purpose of the files, and on the content within the files. This standard is a supplement to DMC-DM-STD-012.

2 Risks of non-compliance

Some of the risks of not having, or not complying with these standards are:

- Incorrect versions of modifiable files could be used for updates
- Facility Drawing or Facility Document files required to be modified by multiple groups/individuals are uncontrolled
- Multiple files of the same version number used for fabrication/construction may contain different content
- Proprietary content may be unlawfully distributed
- Conflicts in content may occur due to multiple sources of input
- Security audits may result in dissatisfactory scores

3 Overview

The modifiable file component is the component that referees and controls the modifiable files that are the heart of the Engineering drawings and documents. This is the control needed to ensure the proper addition, deletion, and modification of design and decisions that are found in the published documentation and is the founding source of all the information that is distributed for use to create a Plant.

Security of modifiable files is paramount to any operation. If the same file is modified by two different engineering groups at the same time, it can cause potentially dangerous situations, costly legal issues, and poor design.

Modifiable engineering design files are the property of the owner of the asset or facility, even if their standards do not require them to be returned, regardless of who creates them. Supplier modifiable files belong to the piece of equipment that has been fabricated and should go to the organization that purchased that equipment, which is most often the asset owner; although the supplier of goods or services may charge the owner an additional fee for providing the modifiable files of the design. These modifiable files will still be primarily used by the engineering group for inclusion into the engineering drawing packages.

Chain of custody of modifiable Facility Drawing and Facility Document files is absolutely paramount. These are files that can be modified, revised and issued. They become the source of truth. The files that create hard copies that are often authenticated and issued for fabrication/construction/installation and thereafter operating and maintaining the asset or facility.

They must be protected from intentional and unintentional unauthorized modification. This means that they cannot be stored in a location that can be accessed by all personnel, and those who do have access

must be properly trained in their management. It also means that they cannot be left as attachments to emails when the email is filed, and must be transferred to single points of contact whenever they are sent back and forth.

4 Modifiable File Requirements

4.1 Facility Drawings

Modifiable drawing files are to be created and modified according to the facility owner's standards (if available), and must use the titleblock templates whenever provided. Facility Drawings are, at a minimum, required to follow industry accepted standards.

It is always the responsibility of the drafter, the designer, and the design lead to ensure that only modifiable files that are signed out are modified (See Section 6 below for further detail on signed out files).

Most design and drafting departments understand the chain of custody and have processes in place to manage it on their end, although Document Control is a large part of that control.

4.2 Facility Documents

Facility documents are slightly different in the sense that they are normally contributions from many different parties. They also need to follow the standards set out for drawing files with a few minor variations specific to non CADD files. As they will be modified by many different groups, most of who may not understand or respect the chain of custody of modifiable files, a closer eye on file movement, more patience and continued education will be needed.

4.3 3D Models

3D Models are often the most difficult to manage as they do not have revision blocks within the model space. The model's paper space (an additional tab in the model file) or advanced properties is to be used to track revisions, depending on the software used. Typically these revisions are only increased when the file is signed in to the owner of the model at the end of a project. They are living files that do not get revised every time there is a change and will periodically be issued to reviewers as a read only file, per an agreed to schedule.

These complete and whole files will be dated files and should also have a lifespan assigned. Once the lifespan has concluded, the file will no longer be able to be opened.

3D Models are the property of the facility or site owner that the model pertains to, and all modifiable model files must be returned to the owner at completion of the project. The owner must receive and manage the files within their own system until further changes to the model are required at which point the sign out process will be used.

NOTE: The control of modifiable Facility Documents and Facility drawings must align with DMC-DM-STD-012.

5 Basic Modifiable 3D Model file storage requirements

3D Model files, due to file size, cannot be stored as one file. It must be broken down into physical area, and then further by discipline, and depending on the size of the plant, potentially broken down further by subgroups within each discipline (for example; stairs, platforms and ladders for structural steel).

The model files are then referenced in to each other so that you have area collector files, and area collectors feed up to the master collector that will show the entire plant. The collector files are not files that have content; they contain only the files that have been referenced into them.