# Creating Procedures for Engineering Document Control

The goal of this guide is to

- Provide a rationale for implementing formal procedures

- Introduce the Document Controller role

- Suggest how to set about writing a procedures manual

- Introduce Trix Software and Services

See also: First Steps in Engineering Document Management
Introduction to Technical Data Management Systems

Components of document control

- There are typically three main elements
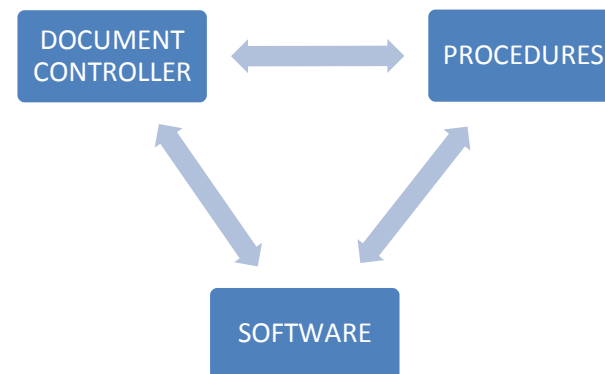
- This guide focuses on Procedures
  and the role of the Document Controller.

- Software, such as our Trix Organizer, complements
  procedures and provides tools to simplify
  control procedures

What happens without formal procedures?

- Individuals create their own informal procedures. But then:

  – Folder and file names are inconsistent

  – Files are moved or duplicated in new locations

  – People adopt their copy of the file as their personal master copy and make changes or redlines that aren't seen by others

- When someone needs a document from outside their realm they

  – Ask someone else to find it. This takes up other people's time to search

  – Use an old copy they have on hand which may be out of date

- Spreadsheets of drawings are attempted but aren't kept up to date

- Eventually it's impossible to tell what is current and approved

As time passes

- Documentation becomes increasingly disorganized

- Trust in individual documents diminishes

- Time lost searching and verifying becomes normal— just an unquestioned part of overhead

- Sooner or later there is an 'identifiable loss' event, when absent or wrong documentation results in:

  - Unusable product

  - Reworking

  - A penalty for a late delivery

  - The worst case, an accident

- This type of loss typically triggers the decision to create formal document management procedures

The Document Controller role

- Someone has to be the point person. So this role should be established at the same time as implementing formal procedures

- The Controller is

    – Responsible for the security and good order of the document archive

    – The author of the Procedures Manual

    – The go-to person for answers to procedural questions

- And typically

    – Has other roles that compete for their time

    – Is responsible for Documentation Quality Assurance

    – Administers the Document Management software

- The Controller's job is to create and maintain order. It is not to act as a librarian. So end users should expect to find documents for themselves.

Creating Procedures

- Writing the basic procedures should not be a big project

- Writing the first version should take hours, not days

- Find a champion for the procedures, with the power to enforce them once they are implemented

- Identify people who will benefit the most. They will be allies during implementation

Gather information

- People will have good reasons for having their own informal procedures

    – I need to keep the prints in my own drawer to get to them quickly

    – I have to copy files because I label folders differently

    – If I send redline upstairs it takes months before anything happens

- You will need to know about these so you can

    – Address them in the formal procedures

    – Communicate how the new procedures will be better

    – Be seen to be taking account of real issues

Master Documents

- Establishing which file or print is the Master Document is essential. This is the one that is kept up to date and is the one that is officially authorized

- If the Master Document file is managed by software there should be no need for Control Copies (because the software will take care of only displaying the authorized master copy)

- If Control Copies are required, procedures should include instructions for updating and retiring them to keep them in sync with the Master

- All derivative prints and PDFs should be considered uncontrolled. Your system should watermark or stamp derivative copies as 'Uncontrolled'

Identify the Lifecycle of your Documents

- Give names to each stage of your documents' lives.

  The ISO specification* for Engineering Documentation suggests

    – Registration

    – Preparation (Design)

    – Establishment

    – Use

    – Revision

    – Withdrawal

# Identify activities associated with each stage

- Examples:

  - Registration: Give Document a Title, Describe, Allocate numbers

  - Preparation (Design): Edit, Request Review, Record Changes

  - Establishment: Check, Approve, Release, Transmit

  - Use: Publish, Find, View, Redline, Print

  - Revision: Change Control, Edit, Request Review, Record Changes

  - Withdrawal: Approve, Hide from view

- The same activity can occur during different stages

Identify document status labels for each stage

- Examples

  - Registration: New

  - Preparation (Design): WIP, For Review

  - Establishment: Approved, Unapproved

  - Use: Published, As-built

  - Revision: Change Requested, WIP, For Review, Approved, Unapproved

  - Withdrawal: Voided, Archived

- The same status can exist during different stages

Create a document work flow diagram

- Incorporate stages, activities and status options
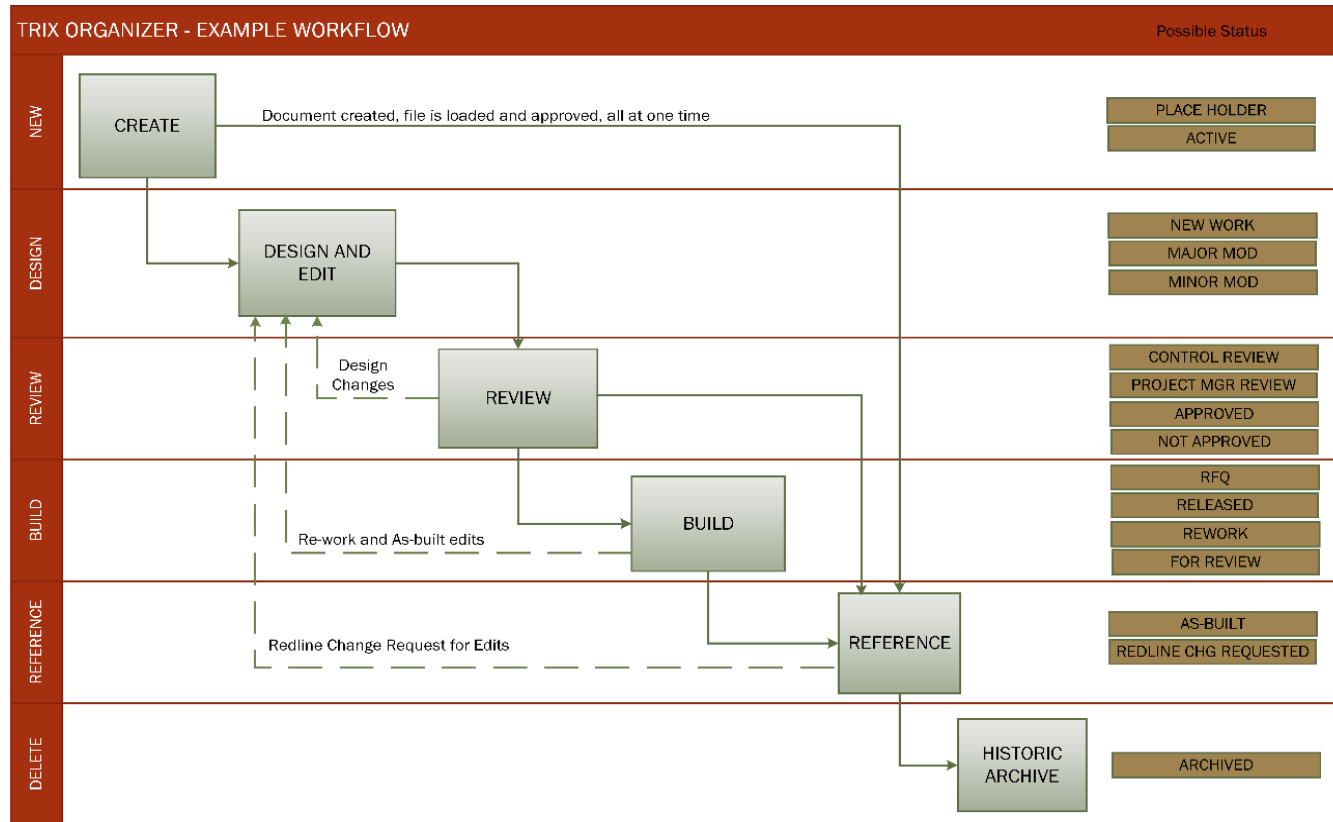
Writing up procedures

- No one will read a long procedures manual. Keep it short and simple

- Include only key procedures and rules to begin with

- Ideally, the initial manual should be just a page or two

- It can grow bigger over time and become a reference book, but only as procedural issues come to light and have to be addressed

- Circulate the draft manual to people who will be using it and get feedback

Lay out procedures by where the document is in its lifecycle – for example

Procedures Manual – Rev 0 – 10/14/14

Operations on documents in dark blue text. Other operations in red.

Stage	Document Status	Procedure to follow	Rules
Registration	New	Project Mgr or Doc Controller creates a new document record with metadata. Adds file to record by Inserting empty template file from database Duplicating existing drawing/document Adding a file from outside the system	Only a Project Mgr or the Document Controller can create new document records. Project Mgr name and Project number must be selected during metadata entry.
	New	Project Mgr assigns document to a Designer.	
Design	WIP	Designer sets status to WIP. Designer checks out document for editing.	Designer must check document back in at end of day so file is included in nightly system backup.
	WIP	Designer completes edit and enters revision and change note at check in.	See notes below for rules for rev numbering and lettering.
Review	n/a	Designer changes status to For Review and notifies Project Mgr.	
	For Review	Project Mgr reviews drg using the built-in Viewer and redlines changes to be made.	
	Disapproved	Notify Designer of rework. Designer changes status back to WIP. Designer makes edits.	
	Approved	Project Mgr changes status to Approved and notifies Doc. Control. Document Controller changes the status to one in the Build stage.	
Publish	Approved not Released	Document is approved but not yet released to build.	Doc Controller may not release until Project Mgr gives approval
	Released	Document is used for build.	

Going live with your procedures

- Don't assume people will read anything. Take a few minutes in a regular meeting to go over the contents, answer questions and set a start date

- It's a living document. Change it when the procedures don't work or you need to add to it. Revise it just as you would revise a drawing

- Keep it up front until procedures are routine. If you introduced it at a weekly roundup, take time the next week to ask how it's going, what should be changed

- When you make a change, don't send out changed manuals and expect people to read them. Instead, tell folk specifically about the change in a meeting or email

- Follow the procedures yourself. If you don't (or can't), no one will

Overcoming resistance

- People tend to be skeptical about having to follow formal procedures

- When implementing procedures, acknowledge that

  – Following procedures takes time and effort

  – The effort required is often greatest at the end of a job, when a file has to be checked back in or changes redlined. Just when you are tired and time is short, more is asked of you

- Completing documentation is like putting tools away properly

  – We do it because it saves time and aggravation next time they are needed

  – We do it because it's part of proper teamwork and common courtesy

  – We do it for site safety and efficiency

- Buy-in is easier if you have consulted people in advance

The role of software

- Formal procedures are the primary basis for good order

- Manual file management and updating lists or spreadsheets typically fails because:

  – The necessary routines are too time consuming for individuals

  – Disciplines are hard to enforce

  – Trust is lacking because the procedures are seen as fallible

- Engineering Document Management Software (EDMS) makes it easier to follow procedures and enforce disciplines

- Software is consistent and reliable so it is more easily trusted.

Examples of tasks that EDMS software improves

Procedure	Done Manually	In Software
Searching	Restricted to searching for file and folder names	Search and filter on Titles, Projects, Equipment, Status etc.
Revision Control	Trust that people diligently follow procedures	Enforces check-out and -in rules, records histories, locks files being edited
Following Workflow and Assigning Jobs	Whiteboard and paper checklists	Channel documents through workflow paths. Display task lists for each user
Redline	On individual prints	Centralized and shared redline spreads knowledge
Cross Linkage	Separate lists for documents, projects, equipment	Single relational database. Starting with one item, jump to the others
Report Generation	Paste from spreadsheets	One-click using report templates
Security and Rights	Folder Read/Write Privileges	Granular control of what users can do and see, based on document status
Following rules	Individual's discretion	Automatic application of rules based on workflow status and user name

What Trix Systems provides:

- ## Document Control Requirements Studies

  - We review your processes and existing data, recommend procedures and software, prepare a budget and run a pilot

- ## Software

  - We develop and install our own EDMS software

- ## Data Clean Up & Classification

  - We consolidate, clean and classify existing files and drawings

- ## Procedure Writing

  - We write practical procedures for document and CAD protocols

- ## Training

  - We offer on-site and Internet-based training for every level of user

Trix Systems Software

- *Trix FastDoc* is a Web-hosted Engineering Document Management service that provides storage, revision control and secure distribution.

- *Trix Organizer Standard* is Engineering Document Management software to install on your own servers.

- *Trix Organizer Industry Selections* provide Technical Data Management software specific to individual industries.

- *Trix Project Access* enables secure customer and vendor access to manage, view and transfer data during projects.

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