

# A Simple Guide to Design Change Control



Completing design changes can be a laborious task at times. Sometimes this can mean that the process of completing the necessary paperwork to support the change can become less of a priority than the actual change.

This short summary aims to try and ensure that some common pitfalls are avoided, and to summarise sound reasoning as to why staff should stick to the process to benefit not only their employers, but also themselves.

## What drives a change?

Despite most design solutions being subjected to a rigorous design process with competent and experienced personnel generating the solution, sometimes when the solution is installed, produced or constructed, it might be identified that what was originally perceived to be the ideal solution, is actually not quite all it originally appeared to be. This could be for a number of reasons, such as:

- **Cost** - the original budget is no longer available
- **Change of Scope** - the Client has changed the design brief
- **Changes to Design Parameters** - the original constraining factors have now changed, resulting in the need for an amendment
- **Supply Chain Issues** - restriction on materials or components necessitates a deviation from the original solution
- **Unknowns** - previously unavailable information, or shortfalls in the supporting design information identify the need for a change
- **Innovation** - new technology, lessons learnt, or new ideas can all instigate a change
- **Quality** - a previously identified defect can drive an improvement
- **Human Error** - mistakes can be made during design or manufacture / construction

**“Completing design changes can be a laborious task at times. Sometimes this can mean that the process of completing the necessary paperwork to support the change can become less of a priority than the actual change.”**

Share this article:



## Why follow a process?

There are numerous sound reasons why generating and following a documented process is key to protecting Employers, Employees, Clients and members of the public:

- **Compliance with ISO 9001** - companies require accreditation in order to meet the requirements of their customers. ISO9001 accreditation can be a driver for further business from bigger clients who stipulate this as a mandatory requirement.
- **Protection** - Design Liability protects companies from claims of negligence where competence and due-diligence can be demonstrated. Failure to follow a process might render this insurance void.
- **Prosecution** - in the event that a change has caused an accident, and the change has been authorised or carried out by someone without the required level of competence, that person could be liable to [criminal prosecution](#).
- **Responsibility** - the use of a clearly defined process, ensures that competent persons are allocated with the required level of competence in order to review and process changes to the original design solution
- **Recovery of Costs** - where a Client is involved, the process of recording the change and getting it approved by the Client involved can be a mechanism for highlighting additional costs incurred or indeed act as a means for speedier recovery of these costs incurred.

## Ensuring your Design Change is robust...

### STAGE 1:

Once the need for a change has been identified, the supporting information needs to be reviewed, added to and amended where necessary in order to support the amendment. This information could include:

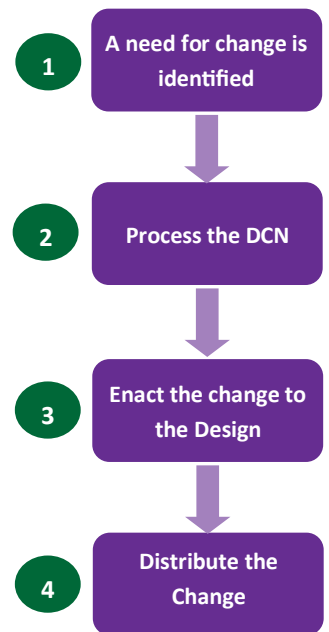
- Drawings - either revised as a Redline Mark-Up (RLMU) or completely new
- Schedules
- Calculations
- Test Records
- Confirmation from other parties, where the design affects more than one group, that the amendment suits all involved
- Additional costs
- Impact on Programme

### STAGE 2:

When processing the change, ensure that the agreed and documented procedure is adhered to. As a minimum, the approval of the Design Change Note (DCN), should include the following items where applicable:

1. Review, comment and acceptance by a Competent Engineer
2. Review by the Client for acceptance (or a Senior Engineer, dependent on the process)
3. Where the Client is not the end user, seek further acceptance of the solution before submitting the response (i.e. if the Client is acting on behalf of the User)
4. Complete the paperwork, and formally record the outcome on the DCN

*N.B. If you are responsible for generating / signing off a DCN, ensure consideration is taken as to whether or not the change is being done as a necessity, "Preferential Engineering," or a Scope Change. This may dictate the need for suitable instruction to carry out the change under the contract, or provide grounds for rejecting the change. Failure to do so may result in your Employer incurring unnecessary additional costs.*



Share this article:



### STAGE 3:

Once the change is signed off by all relevant parties, the change needs to be made:

1. Where the change is detailed, and a RLMU will not suffice to accurately communicate the changes, the drawing needs to be transferred to the detailed design drawings
2. If the design is complex and impacts on more than one drawing or document, care needs to be taken to ensure each document is correctly amended
3. Checks on all drawings, schedules, calculations, etc. need to be completed and verified by the suitably authorised persons
4. If required to comply with specific standards or specifications, check that the change has been done in compliance with these to avoid non-conformity
5. Finally, where required, the change needs to be submitted through any Client specific checks. Ensure that the time required for these checks is considered when making any changes.

### STAGE 4:

Finally, now that the change is signed off, accepted and designed, it can be distributed. All persons on the distribution list should have their old copies removed, destroyed and replaced to ensure that everyone is building to the same design. See our [Simple Guide to Document Control](#) for more on this.

## Final things to consider

A few final pointers that need to be considered:

- Ensure that the DCN has all the relevant information included.
- Ensure that the RLMU's are legible.
- Does the change adversely impact any other element of the design or the existing components?
- Does the amendment create additional risks for routine maintenance of this or other elements?
- Does the change increase the "whole-life" costs to the end user which outweigh the cost of making the change?
- Does the change affect the way that other components operate? Consider as a minimum:
  - ◆ Temperature change
  - ◆ Corrosion
  - ◆ Abrasion / Friction
  - ◆ Explosive elements
  - ◆ Vibration
  - ◆ Noise
  - ◆ Friction
  - ◆ Efficiency
  - ◆ Performance
  - ◆ Flow
  - ◆ Pressure
  - ◆ Waste / Recycling
- Is the process of making the change likely to incur costs which are greater than the savings made by implementing the design?
- Maintain channels of communication throughout the design change process in order to minimise the delays in getting the formal sign off for the change.



Share this article:



- Where the change is outside of the original design information, complete further investigations and surveys to provide additional support.
- Include correspondence from other parties to justify any change.
- Open channels of communication with other parties within your team at the earliest opportunity so that they can provide input, prepare formal documentation, or just to update them on current affairs.
- Temporary works are still classed as designs. Making amendments to the design can have catastrophic consequences so the same rules should still apply. If you didn't design it, don't change it until the Designer has reviewed and approved the suggestions / amendments.
- Does the change create more risks to the installer than the previous solution?

**Despite all these notes, we are firmly advocating the need to initiate and follow a process. Failing to do so creates the opportunity for an organisation to incur significant risks in the form of costs, programme, H&S or environment, all of which are liable to damage not only reputation, but also undermine businesses and in the worst cases, destroy lives.**

*From the editor: We have tried to make sure the above article is as accurate and up-to-date as possible. If you think we have something wrong, or you feel we need to update it, please get in touch [here](#).*

Share this article:

