

# Engineering change **ECR / ECN** management

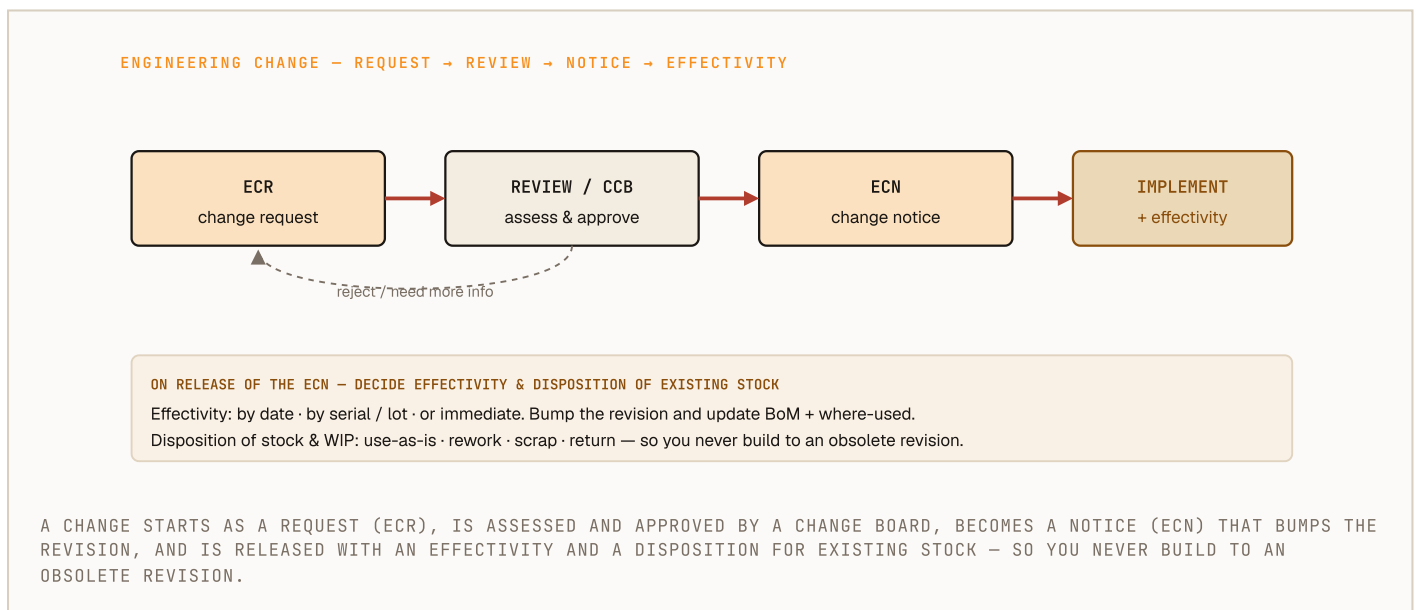
Controlling change after release — the ECR→review→ECN→effectivity flow, change classification, disposition of existing stock, revision and BoM impact, and a fillable log.

| REVISION | ISSUED    | OWNER                | COMPANION               |
|----------|-----------|----------------------|-------------------------|
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## ABSTRACT

Before a design is released, changing it is free — you just edit the file. After release, every change ripples into purchased stock, work-in-progress, tooling, documentation and the field. Engineering change management is the lightweight process that keeps that ripple controlled: a request is raised, assessed for impact, approved, turned into a notice that bumps the revision, and released with a clear effectivity and a disposition for existing inventory.

Section 1 frames why change control matters and when it kicks in. Section 2 is the ECR→ECN flow and who decides. Section 3 is change classification. Section 4 is effectivity and the disposition of existing stock. Section 5 is revision, BoM and documentation impact. Section 6 is a checklist. A companion **Excel ECR/ECN log** tracks every change with live status counts plus a fillable ECN form.



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## 1. Why change control — and when it starts

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Change control starts at **design release** — the moment a drawing, BoM or firmware version is frozen and others begin to rely on it (purchasing orders parts, production builds, customers receive units). Before that point, iterate freely. After it, an uncontrolled change can mean obsolete stock built into product, a field failure, or a part that no longer mates.

A good process is **proportional**: a typo fix on a drawing note is not a new mold. The goal is traceability and impact control with the least friction that still prevents mistakes.

|                    |   |
|--------------------|---|
| <b>ECR</b>         | Engineering Change Request — proposes a change and the problem it solves; the input to the review                       |
| <b>ECN</b>         | Engineering Change Notice (or Order) — the approved, released instruction that enacts the change and bumps the revision |
| <b>CCB</b>         | Change Control Board — the people who assess and approve changes (eng, quality, ops, purchasing)                        |
| <b>Effectivity</b> | When the change takes effect — by date, by serial/lot, or immediately   |
| <b>Disposition</b> | What to do with existing stock / WIP at the old revision — use-as-is, rework, scrap, return                             |

## 2. The ECR → ECN flow

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A change moves through a short, auditable path. Keep the request and the notice as separate records — the ECR captures *why*, the ECN captures *what was approved and released*.

| STEP         | RECORD | WHO                              | OUTPUT                                   |
|--------------|--------|----------------------------------|--|
| 1. Raise     | ECR    | Anyone (originator)              | Problem, proposed change, affected items |
| 2. Assess    | ECR    | Engineering + impacted functions | Cost, schedule, risk, BoM & doc impact   |
| 3. Approve   | CCB    | Change board                     | Approve / reject / defer                 |
| 4. Release   | ECN    | Document control                 | New revision, effectivity, disposition   |
| 5. Implement | ECN    | Ops / purchasing / eng           | Update files, tooling, stock; verify     |
| 6. Close     | ECN    | Document control                 | Verified effective; archived             |

- **Keep the request lightweight so people actually raise issues; put the rigor in the assessment and approval.**
- **One change = one ECN where possible**  
easier to trace, roll back and audit than a bundle.
- **A rejected ECR is still a record**  
it documents that the change was considered and why it was declined.

### 3. Classifying the change

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Not every change needs the same scrutiny. Classify on **fit, form, function and interchangeability**, plus regulatory and customer impact, and route accordingly.

| CLASS                         | DEFINITION   | TYPICAL HANDLING  |
|-------------------------------|--|---|
| <b>Major (Class I)</b>        | Affects fit/form/function, interchangeability, safety, regulatory, or the customer interface                                       | Full CCB review; customer / notified-body approval if required; revision bump |
| <b>Minor (Class II)</b>       | No effect on interchangeability or function — clarifications, tolerances within capability, doc cleanup, alternate equivalent part | Streamlined review; revision or doc-rev bump                                  |
| <b>Interchangeable vs not</b> | Does the new part drop in for the old in <b>both</b> directions?   | If not interchangeable, the part number must change — not just the revision   |

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- **Revision vs part number: a revision change means the new part replaces the old and is interchangeable. If the change breaks backward interchangeability, assign a new part number instead.**
- **Form-fit-function (FFF): changes that don't affect FFF are usually minor; anything touching the interface, performance or safety is major.**

## 4. Effectivity and disposition of existing stock

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This is where most change pain actually lands — deciding **when** the change applies and **what happens to parts already made or on order**.

|                          |  |
|--------------------------|--|
| Date effectivity         | Applies to everything built/ordered on or after a date — simplest, good for non-critical changes |
| Serial / lot effectivity | Applies from a specific unit or batch — needed for traceability, recalls, regulated product      |
| Immediate                | Stop-ship; applies now to all stock — for safety or blocking defects                             |

For every approved change, set a **disposition** for finished stock, work-in-progress and on-order parts:

- **Use-as-is**  
existing stock is acceptable; change applies going forward (typical for cost-down or minor improvements).
- **Rework**  
bring existing stock up to the new revision (define the rework instruction).
- **Scrap**  
existing stock is unsafe/unusable at the old revision.
- **Return to supplier**  
push defective or wrong stock back up the chain.

Always reconcile **on-order quantities and supplier tooling** — an ECN that ignores the 5 000 parts already in transit just moves the problem.

## 5. Revision, BoM and documentation impact

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A change is only "done" when **every dependent record** is updated — not just the drawing.

- **Bump the revision on the changed item and record it in the title block and the BoM (see BoM & component sourcing, IDB-BOM-005).**

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- **Run a where-used check: a changed component may sit in several assemblies**  
each parent BoM and drawing may need a revision too.

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- **Update all documentation: drawing, BoM, work instructions, test/inspection plan (DVP&R, IDB-DVP-052), labels, firmware version, and any customer-facing spec.**

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- **Tooling and fixtures: molds, jigs, programs and gauges that embody the old geometry must be updated or flagged.**

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- **Communicate effectivity to purchasing, production and (if relevant) the customer before the date hits.**

## 6. Checklist

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- **Raise an ECR with the problem, the proposed change and the affected items**  
not just a solution.
- **Assess impact across cost, schedule, risk, BoM, where-used, tooling, documentation and the field.**
- **Classify (major/minor; interchangeable or new part number) and route to the right approval level.**
- **Approve at the CCB with eng, quality, ops and purchasing represented; record the decision.**
- **Release an ECN that bumps the revision, sets the effectivity (date / serial / immediate) and the disposition of existing stock.**
- **Update every dependent record**  
drawing, BoM, work instructions, test plan, tooling, firmware, labels.
- **Verify and close**  
confirm the change is effective in the build and archive the record.
- **Log everything in the companion Excel ECR/ECN log so status, effectivity and history are one click away.**