Lap Shear Test Log

How-to guide: what the workbook does, how to use it and what every number means. mfgcalcs.com

Lap Shear Test Log

Log every lap shear specimen, work out its apparent shear strength from the measured overlap, and see which batches pass their test plan, which fail, and which need their failure modes reviewed.

For: Quality and test engineers, adhesive process engineers and lab technicians qualifying or checking bonded joints.

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Quick start

1. On Setup, type the lab name and list your test plans, the failure modes they accept, and the batches you test.
2. On Specimens, give each specimen a row: batch, specimen ID, test date, failure load, measured overlap width and length, and the failure mode.
3. Fix anything the Check column names.
4. Open the Dashboard: specimens below requirement, failure modes to review, and the result of every batch.

What is in the workbook

Start Here	Read this first: what the workbook does and how to use it.
Setup	Lab name, test plans, the failure modes they accept, and the batches you test.
Specimens	One row per specimen tested to failure: load and measured overlap in; strength, margin and result out.
Dashboard	Specimens below requirement, failure modes to review and the result of every batch against its test plan.
Method	How every number is calculated, with assumptions, limits and sources.
Verify	Self-check: the workbook's formulas recomputed on fixed inputs against an independent reference.

What each number means

Quantity	How it is calculated	Units
Plan and required strength	Looked up from the batch's plan on Setup.	MPa
Overlap area	Measured overlap width x measured overlap length.	mm^2
Apparent strength	Failure load / overlap area (1 N/mm^2 = 1 MPa).	MPa
Margin	Apparent strength - required strength.	MPa
Result	FAIL when the margin is negative; Check when the failure mode is not marked acceptable on Setup; PASS otherwise.	-

Quantity	How it is calculated	Units
Batch mean	Average apparent strength of the batch's specimens.	MPa
Batch result	FAIL if any specimen fails or the mean is below the requirement; Check if any specimen needs a Check; In progress below the plan's minimum specimens; PASS otherwise.	-

Assumptions, limitations, sources and the self-check (the Verify sheet, which recomputes the workbook's formulas on fixed test inputs) are in the workbook. The last page shows the Dashboard with the example data for Fernhill Assemblies, a fictional business.

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Engineering estimates for planning and improvement work. Verify the results against your own process, data and standards before you rely on them.

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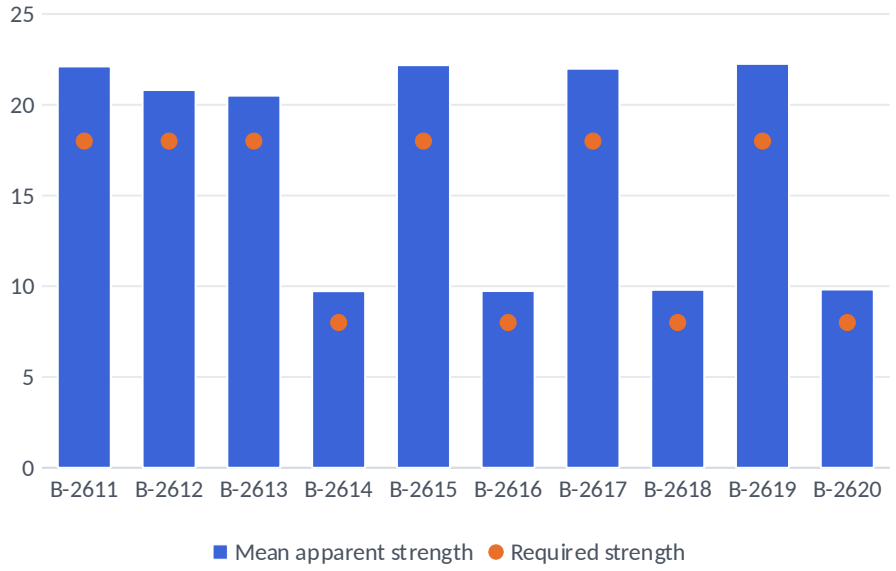
Specimens below requirement, failure modes to review and the result of every batch against its test plan.

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Fernhill Assemblies, bonding lab (example): 48 specimens from 10 batches on 2 test plans.

SPECIMENS TESTED	SPECIMENS BELOW REQUIREMENT	FAILURE MODES TO REVIEW	BATCHES FAILING
48	1	2	1
Rows with a strength	Result FAIL	Strength passes, mode not accepted	Batch result FAIL

Mean strength against requirement (MPa)



Specimen results by batch

