

Consistent quality,
fit-up, & performance
———— by design ————
From concept through
production.

Other services

- GD&T Dimensional Blitz
- Manufacturing simulation
- Training: design, analysis, and GD&T
- Corporate design strategy
- Intern strategy and on-campus hosting

SENSITIVITY-BASED DESIGN SERVICES.

Consistent quality, fit-up,
and performance.

A better fuel injector

When you see diesel engines start without a soot cloud, think Sensitivity-Based Design.

We saved a major engine manufacturer over \$500k in design, manufacturing, warranty, and regulatory costs on their new fuel injector.

They needed to predict the quality of their new concept. We showed controlling injection duration would be almost impossible with in-tolerance but imperfect or worn parts.

Instead of tightening tolerances, we refined the design to be less sensitive to wear and component variation. We used standard tolerances and still hit performance goals.

Now their engines start up and run clean. Consistently and by design.

About Prairiefire

Prairiefire's employees have over 20 years experience with design and sensitivity analysis, are 6 σ Black Belt certified, and have taught Sensitivity-Based Design, geometric dimensioning & tolerancing (GD&T), and dimensional management in 8 countries.

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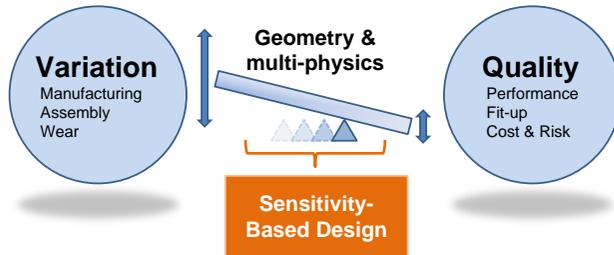
🌐 www.pfcae.com



Quality. By design.

Prairiefire helps you produce products that are consistently high quality, reliable, and less costly.

We use Sensitivity-Based Design (S-BD) to quantitatively link inputs like manufacturing variation to outputs like quality, fit-up, and performance.



Controlling a system by tightening tolerances is an expensive, risky tactic. Which tolerances to tighten? How much? Will it fix the problem?

Instead, Prairiefire first finds the root causes and adjusts system sensitivities. The result is a more efficient, sustainable solution. Variation has less impact on quality in the first place.

It's a powerful, game-changing approach to improving quality, reliability, and cost.

“Their willingness to share insight has most definitely improved the design of our product.”

– Principal Engineer,
Transport temperature
control systems

Maximize your ROI

Finding and fixing root causes with S-BD has up to a 90x ROI¹.

Prairiefire gives you control over cost and risk by solving quality issues early in the design cycle.

10–30% of sales² is typically spent on warranty and firefighting. Let's cut the waste and add that to your bottom line instead.

90x
ROI¹

10–30%
of sales²

Engineering to go with your GD&T training

Know the language of GD&T but not sure what to say to define quality parts?

We connect datum scheme and tolerance choices to their effect on your end product.

Put it all together

All that analysis is great, but what tolerance do you put on the print?

Prairiefire ensures your analysis investment makes it all the way through manufacturing, whether it's your next generation product or a problem you need to solve right now.

100% fit-up

Have a fit-up, scrap, or takt time issue? Want to avoid them in the first place?

Prairiefire finds and fixes the root causes, instead of just tightening tolerances.

Consistent performance

Know how variation effects performance? Or how it impacts concept selection?

Prairiefire links performance, geometry, C_{pk} data, and tolerances. And we can help refine your design to be less sensitive to variation in the first place.

“They were able to come in and assess our problems very quickly... from a very wide breadth of experience.”

– Engineering Manager,
Construction and
agricultural equipment

Ready to quit fighting fires?

Design quality in from the start. Give us a call today.

support@pfcae.com
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¹ Su, Q. et al., 2009. Research on the trade-off relationship within quality costs: A case study. Total Quality Management, Dec., 1395-1405.

² Harry, M.J., 1998. Six sigma: a breakthrough strategy for profitability. Quality progress, May, 60–64.