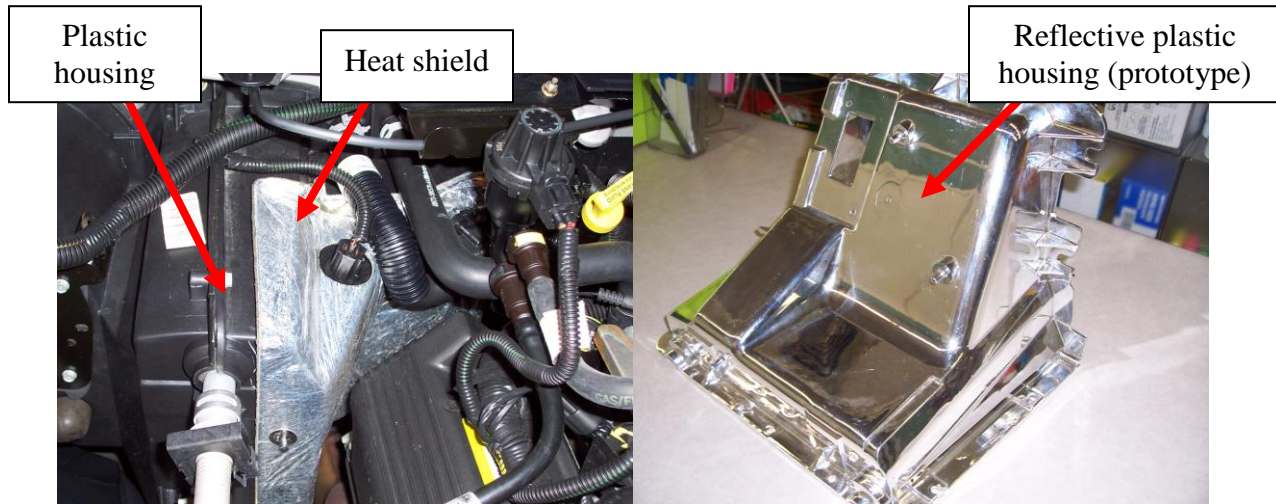


Category: Value Analysis/Value Engineering (VA/VE) & Cost Reduction

Example: Integration of heat shield functionality into base plastic component

Situation: Automotive air handling components protruding into the engine compartment often need heat shields to prevent damaging plastic parts.



Problem: Heat shields are expensive components, and require labor to install. Additionally, fiberglass fibers created health & safety issue.

Action:

1. Used Value Engineering methodology to ask “What is the heat shield function?”; learned shield only stopped heat transfer by radiation
2. Inspired by lighting background to make plastic component reflective
3. Estimated rough magnitude of cost savings showed large potential
4. Used simple energy-balance simulations as a first-pass model of feasibility; primary concern was to avoid degrading AC performance
5. Progressed to plaque testing using laboratory mock-up to simulate engine compartment conditions; evaluated materials & coatings
6. Built prototype components and subsystem based on lab results
7. Refined cost savings model
8. Tested prototype unit through harshest AC performance test possible

Result:

1. Test performance matched production unit
2. Estimated cost savings of approximately \$750K annually if concept could be implemented across corporate AC product line (material & direct labor only)
3. Added savings through floor space, inventory, and material handling
4. Elimination of health and safety issue
5. Possible revenue increase by in-sourcing manufacture of reflective housing from outside supplier to another corporate facility