



PROJECT PROFILE

FEA – TRAFFIC LIGHT

CLIENT CHALLENGE

A large North American supplier of traffic signal equipment was experiencing a high number of structural signal housing failures of one of its polycarbonate traffic light assemblies in the field and required an engineering assessment to determine the cause(s). Prior to the incorporation of Palladium Product Development & Design several current Palladium personnel were retained to carry out an investigation and assessment program of the failures in order to create the appropriate corrective strategy for the company.

The program included a sample review of the failed parts and the collection of pertinent information related to the failures. An FEA model of the signal head was created, and based on the solid model, load cases were applied (ice accumulations and various wind loads and vectors) to the model. This was followed by a complete evaluation of the design based on the information collected and the FEA results presented in report format to the client.

PROJECT HIGHLIGHTS

Engineering evaluations of the failed samples with linear static FEA were applied in this project. The polycarbonate plastic signal head design was evaluated, critical stresses were found under different load conditions, which were above the ultimate design strength of the plastic material. New design improvements were determined and implemented by the client, resolving the issue.



SUSTAINING ENGINEERING

Is provided by Palladium Product Development & Design on an ongoing basis for many products and companies such as the case history described above. Many of the same personnel (some with over 20 years of industry experience) are still active and providing services to past clients they have served, with continued upgrades and product improvement programs. Design modifications related to manufacturing efficiencies, researched quality improvements and implementation of client/user feedback are routinely implemented as a result of these analysis services.