

The Lighting Research Center (LRC) reviewed the literature available about issues of durability testing. We looked for other standards, domestic and international, that might guide us in the development of a testing procedure for durability of ENERGY STAR® fixtures. Assuming that incompatibility between lamp and ballast was the major cause of premature failures, we considered several different life-cycle testing scenarios.

We established a proposed test method, and presented it to a roundtable meeting of ENERGY STAR fixture manufacturers. The feedback of the roundtable participants was that lamp-ballast incompatibility was not in fact a major cause of premature failure with ENERGY STAR fixtures. Excessive temperatures of the ballasts emerged as the leading cause of failure. In particular, we were advised to focus on small compact fluorescent fixtures with minimal ventilation (such as recessed downlights and enclosed ceiling-mounted fixtures), as these types see the highest temperatures and the most frequent failures.

As a result of the roundtable, LRC has revised our proposed durability testing method. Using temperature apparatus and procedures outlined in UL 1598, we will be performing temperature testing of ballasts within operating fixtures.

We are finalizing the assembly of our testing apparatus, and have acquired dozens of products from all ENERGY STAR manufacturers with compact fluorescent recessed and ceiling mounted products, from both the old 2.0 ENERGY STAR list, and the new 3.1 list (posted 4/1/02). Temperature testing will take place over the course of the next two months.

We will be performing some limited stress testing of 8-10 typical lamp-ballast combinations, on a rapid cycle of 5min on/5 min off.

The results of temperature and stress testing will be presented to industry at a follow-up roundtable in the Fall of 2002.

The other outcome of the roundtable is that lamp and ballast manufacturers are attempting to establish an ENERGY STAR "qualified" specification for lamps and ballasts, separate from ENERGY STAR fixtures. Under this plan, ENERGY STAR fixture manufacturers would therefore need only select from the pre-approved product list, then perform temperature testing in their actual fixtures. Ballast manufacturers would establish specific thermal testing locations for the use of the fixture manufacturers.

Lamp and ballast manufacturers (in association with National Electrical Manufacturers Association (NEMA)) have been discussing these issues with US E.P.A. Pending discussion, this plan may one day transition to ENERGY STAR lamps and ballasts.