Abstract:

Many New England utilities have instituted Quality Installation Verification Programs (QIV) to improve the efficiency of residential air conditioning (AC) systems by encouraging HVAC technicians to use third-party software to test the air flow and refrigerant charge conditions of AC systems they install or service. The QIV approach recognizes that many existing systems and new installations do not achieve the maximum efficiency because the refrigerant charge and air flow are not at the levels recommended by the equipment’s manufacturer. The QIV programs provide incentives to technicians who use either the Honeywell Service Assistant (HSA) or the CheckMe tools to test system conditions.

This paper examines the results of programs in New England focused on encouraging HVAC firms to use the QIV testing approach when installing or servicing AC systems. This paper discusses whether the QIV tests save energy and avoid peak demand and whether there are other AC systems initiatives that deserve more attention in New England.

The paper finds that Quality Installation Verification Programs cannot be justified unless the AC systems have extra capacity at system peak. If systems have insufficient capacity, efficiency gains produced by air flow and refrigerant charge correction will not reduce peak demand. The undercapacity of air conditioners at peak appears to happen in many of the homes included in the 2002 base line assessment conducted by a group of New England utilities by RLW Analytics and in on-sites performed in 2006 on homes receiving a high efficiency air conditioner.