

ENGINEERING EDUCATION IN ENERGY CONSERVATION AND HVAC DESIGN
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ABSTRACT

Available information on the status of engineering education in HVAC, conservation, and solar design is reviewed and results of two new surveys on these topics are presented. It is estimated that 100,000 engineers are active in these areas - more than are active in chemical engineering, aerospace engineering, and several other educationally distinct disciplines.

Evidence suggests that many HVAC/Energy engineers receive much (if not most) of their HVAC/Energy training after college. A survey of Denver area ASHRAE members found that 60% have ME degrees, 23% have other engineering degrees, and 17% do not have an engineering degree. Those with engineering degrees have typically taken 3 or 4 courses in theoretical and applied thermal sciences - or have spent about two-thirds of a semester in studying of topics directly relevant to HVAC/Energy engineering. Those without engineering training typically had no courses directly relevant to the area.

Examination of college catalogs for 182 ME programs showed that 26% offer no courses, 48 offer one or two courses and only 26% offer more than two courses dealing with HVAC, conservation and/or solar. The nine Architectural Engineering programs offer an average of 3.6 courses in these areas. Eighteen universities were identified which offer a total of five or more courses (the equivalent of one semester or more of full time study in these areas). Additional detail is provided in the paper and recommendations for a better assessment of educational needs in HVAC/Energy engineering are made.

Based on these findings, it is recommended that:

1. A comprehensive survey should be made to determine employers' perceptions of the need for increased HVAC/Energy engineering training.
2. More information should be provided to the industry about the more comprehensive existing programs.
3. Initiate steps to strengthen existing programs or establish new programs as warranted.