

Global Foresight, Inc. 2006 Report on Industry Trends

Heating, Ventilation, & Air Conditioning

The U.S. heating, ventilation, air-conditioning, and refrigeration (HVAC) industry is currently undergoing a period of unprecedented change. The pressures driving these changes – technological innovation in building design and energy conservation – are altering the U.S. market with resultant impacts on equipment and applications.

Employment Outlook

Overall employment of HVAC mechanics and installers is projected to grow faster than average and are seen as an excellent source of employment through 2014. In 2004, heating, air conditioning and refrigeration mechanics and installers held 270,000 jobs, with median hourly earnings of \$17.43 per hour. New employment opportunities would struggle if the economy experienced declining demand for construction related services. However, maintenance and repair services would maintain technician employment.

According to the Labor Department's Bureau of Labor Statistics, construction employed the greatest number of foreign-born workers in 2005--about 2.5 million immigrants, or about one out of every eight. Immigration will continue to change the labor force and wages.

(Source: Bureau of Labor Statistics)

Trends & Emerging Issues

Macro Trends:

- Energy Consumption: Buildings in North America account for approximately 40 percent of the energy consumed on this continent. Of that total, 40 percent of that consumption is from HVAC.
- Increased regulation: The *Energy Policy Act of 2005*, which goes into effect on Jan. 1, 2010, provides incentives for traditional energy production as well as newer, more efficient energy technologies and conservation. Most notably for the facilities industry, the act sets minimum efficiency standards for 16 consumer and commercial products, including commercial unit heaters and large commercial air-conditioners.
- Focus on air quality: Allergies are the 6th leading cause of chronic disease in the United States, costing the health care system \$18 billion annually. There is a growing awareness by homeowners about indoor air quality issues and the impact indoor air has on allergies. Indoor environment quality (IEQ) metrics are increasingly health- and productivity-based as opposed to comfort-based.
- Recycling: Due to its high metallic content (aluminum, steel, copper, bronze) HVAC equipment is comprised of approximately 95% recyclable components. Greater public and industry attention to recycling and reuse of materials is placing pressure on HVAC manufacturers and suppliers to plan for end-life disposal.

Market Trends:

- Do it yourself HVAC projects accounted for \$910 million in home product sales.
- The U.S. National Appliance Energy Conservation Act (NAECA) is under review; it is anticipated that new minimum efficiencies will become effective in 2007.
- Market Consolidation: Significant consolidation is occurring among HVAC contractors, resulting in large blocks of well-established and well-capitalized firms that are spreading across the United States. As a result, smaller, independent contractors are facing increased market competition.
- The trend toward developing net zero energy use facilities is gaining momentum. In such a facility, for a year's operation, the building would produce as much energy as it consumes.

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Forecasts

- New homes of the future will be built primarily with off-site manufactured content such as structural panels, prefabricated components and assemblies, resulting in improved quality and in better energy usage performance.
- By 2020, HVAC service people may use instruments that record measurements sent by factory-installed transponders located throughout the unit to obtain operating pressures, temperatures, contaminant levels, and refrigerant composition, all without physical connections to the equipment.
- Future applications of technological and design innovations include: interior walls designed to act as heat exchangers; "breathing floors" which supply air under the floor to obtain a better distribution of air throughout the room, covered by carpets which act as air filters; electrochromic windows that turn opaque or transparent depending on thermal requirements.
- Future buildings will have wall sensors that ascertain and maintain optimum comfort levels for individuals as the occupants move throughout the home.

Resources

Articles and Reports:

Bureau of Labor Statistics

www.bls.gov

"The Future of Heating, Ventilation and Air Conditioning"

<http://www.tu-berlin.de/fb6/hri/dokumente/publikationen/f65.pdf>