عنوان مقاله:

Techno-Economic Comparison of Central and Separated Heating-Cooling for High Rise Residential Building

محل انتشار:

سومین همایش ملی اقلیم ، ساختمان و بهینه سازی مصرف انرژی با رویکرد توسعه پایدار (سال: 1394)

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خلاصه مقاله:

The present study investigates the comparison of the energy and cost performance of central heating-cooling (boilerchiller fan coil) with separated heating-cooling (boiler-radiator and split air conditioner) to provide both space heating-cooling and water heating in a standard size apartments located in Mashhad (Iran). The building has four apartments at each floor and all calculations have been conducted for 6, 8 and 10 floors. In the present investigation the maximal gained load is evaluated. Then, for central and separated systems, HVAC systems are designed and the detailed costs of designed HVAC have been calculated by consulting the dealers. The efficiencies of each system have been included in the energy consumption of building. The influence of the number of floors on maximal load, HVAC design and initial investment costs, operation, maintenance and repair costs are presented thoroughly. This paper further presents a financial analysis ranking the different heating-cooling systems in terms of their net present value. The results indicate as the number of floors increases the economic benefits of employing central heating-cooling systems becomes dominated for the case study. In order to validate the results, the available data of building is used and thecomputed consumed energy is compared with the estimated energy extracted from monthly bills of gas and electricity

کلمات کلیدی: