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Raising comfort of users and staff in residential care homes for elderly people through water and heat savings (Czech republic)

Hot water is 5-6 times more expensive than cold water and draining water to gain the needed warmth is an expensive and unnecessary way of wasting. Residential care home for elderly people in Okružní street, Brno-Lesná (Czech republic) became a place where an exemplary project has been realized. The project changes the way of hot water production and distribution, provides comfort operation and achieves hot water and energy savings. Comfort has been considered as the main positive result of the project by clients and staff, savings have been considered as benefits.

The water system in the Okružní RCHEP with capacity of 66 beds was first reconstructed several years ago. Unfortunately, it was done in a casual way; no option of regulation, measuring and gaining water samples. Incorrect approach by welding pipelines caused problems with hot water supply in two apartments. Whereas considering age of home users, they make a threatened group of users according to water hygiene.

E.ON Czech republic Ltd. donated 300 000 CZK to realize the victorious project of QZP company in "ENERGY GLOBE AWARD", category "WATER" (November 2008). The result is an adjustment of hot water production and distribution. The aim of this measure was the modification of the current hot water distribution system, so that hot water in apartments ran without problems and water and heat savings were gained at the same time.

After monitoring default status in April 2009, a complex solution was worked out in cooperation with ESL Inc. After the realization and new monitoring between April and July 2010 the annual hot water distribution showed savings of 216 000 CZK (8 715 €). Before the solution was implemented, the average hot water consumption had reached 7,16 m^3/day, that means 108,5 liters per user per day. After the adjustment, consumption got down to 5,81 m^3/day (88,1 liters per user). Decrease of hot water consumption made 1,35 m^3/day (20,4 liters per user), that means less 18,8 %. Nevertheless, cold water consumption kept practically the same level. By decreasing hot water temperature from 56°C to 50°C, energy consumption reduced by 13,6 % (from 12°C cold water to the mentioned levels). The next cost reduction is made by saving energy necessary to heat water, which became unnecessary.

Other results of these adjustments, next to financial savings, are provisioning enough hot water, its hygienic treatment (biocide supplements), less probable chance to get scalded by hot water, users' accessibility improvement, raising accommodation comfort, lifetime extension of hot water production and distribution system, reduction of scale production and others. Staff and clients appreciate the most, that water is immediately hot after switching the faucets. Home users and staff had to waste cold water and wait for the hot one while doing clients' personal hygiene. Now hot water is available immediately and temperature is stable. This brings (in addition to the already mentioned benefits) time savings for the benefit of take care for clients.

Similar projects have definitely saving potential. But the problem is the needful primary investment and social service facilities providers usually do not have enough financial resources. It is essential to look for other ways of funding. Social service providers know, that in case the implemented energy savings projects are successful, they will get smaller resources on operation in the future and therefore motivation decreases to realize similar saving projects. The cheapest faucets are bought in RCHEP's and there is minimal option of regulation. The result is an over dimensioned hot water system, wasting water and energy and insufficient hygiene. Raising staff and clients' comfort could be more motivating for saving measures than the saving itself.

Source: Ing. Dagmar Kopačková, Ph.D.: Okružní RCHEP, Lesná Brno, website www.tzb-info.cz, 2011

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