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Abstract. In an energy audit, the main goal is to achieve energy savings, identify opportunities for savings, the measures for saving energy efficient, prepared the report on energy saving measures. The energy auditis aimed adequate knowledge on the current state of energy consumption in buildings and identify opportunities in energy consumption and cost effective reporting of results. The data to be analyzed are: energy bills (electricity, fuel) for the audit period, for the last three years (and/or next year), building plans and studies and its energy installations electromechanical characteristics building/structure and operation of the apparatus/equipment basic climate data for the period in which the auditis being done. This paper will present an analysis of the overall energy audit standard for residential dwellings in Pristina

Key words: audit, efficiency, electricity consumption, specific consumption

1 Layout and apartment on the seventh floor

The object is located in the district, "New Calabria'' in Pristina and new construction. This building consists of eight floors, ground floor and basement. Flats which is audited found on the seventh floor, overlooking the South. Its area is 62.7 square meters, has sufficient insight and also has sufficient lighting.

The present paper will appear auditing standard apartment and found the specific consumption of electricity and thermal energy and has determined that a need to take measures or not. If yes, should be taken, if not, it is consumption remains current.

a)

b)

Figure 1: The layout of all floors in two entries, A and B - the first object

Table 1: Data of the auditing apartment

Building auditing	**Building First, First Entry - Residential Apartment - Floor VII, No. 1**
Date of audit	
The person interviewed	**owner**
Year of construction	2009
Type of building	More storey residential structure
Type of construction	Skeletal system
Number of floors complete	10 (suteren, ground floors 8)
Apartament	Located on the seventh floor
General state sanitary Technical	Good
Residents	
Accessibility	The permanent
Number of users	3

2 Existing State Building

Apartment building, respectively apartment is in very good condition in terms of energy efficiency, because it is new construction and is comfortable enough, both in terms of heat, both in terms of lighting. The building was built in 2009 and has external insulation with Styrofoam insulation addition of 10 [cm].

2.1 Energy For Heating And Other Energy Use

The heating system is installed in a building central system, based on its own boiler.
Table 2 Interior comfort for working spaces

Heating System	Own central system, but the function is just a radiator. Heating system at home there, but the feature is not issued due to high costs of electricity and is replaced by a small electric heater, which spends very little electricity with a capacity of 2 [kW].	
Subject to burns	Electricity	
The average annual consumption		
Operation of the system	Hours per day	18 hours
	Heating season	October 15-15th April. Is not involved in **TERMOKOS** heating, but the network is ready whenever you connect to the district heating system
	operates	Operates
	Termination of heat (justification)	Not due to saving
The state of comfort	Good, because it is new construction and is comfortable enough, both in terms of heat, as well as the lighting.	

Electricity is used for lighting, cooking equipment, sanitary, but the key is to heat it. Calculation of electricity is made by the expression:

$$VV = P \cdot t = U \cdot l \cdot t$$

VV - Electricity, P - Power, U-voltage, I - Intensity,T - Time.
Terms of comfort for heating, lighting, cooling and ventilation are calculated based on the setting of standards and conditions for a unified system in Kosovo under legislation and applicable international standards described above in the first chapter:

Table 3: Geometric Data

The main geometrical data									
No	**Wall**	**The perimeter of the wall [m]**	**The height of the wall [m]**	**The height of the wall [m] net**	**Windows [m²]**	**Exterior doors [m²]**	**Area [m²]**	**Apartment area [m²]**	**The volume of Apartment [m³]**
1	Foreign	8.2	3	2.8	5.32	1.68	24.6	62.7	175.56
2	Corridor	15.3	3	2.8		2.1	45.9	62.7	175.56
3	Neighbors	8.8	3	2.8			26.4	62.7	175.56
Total					**0**	**0**	**96.9**	**62.7**	**175.6**

2.2 Situation Standardized Calculations

Table 4: Data on state standardized apartment

	Consumption situation of standardized comfort [kWh]	Consumption after EE measures [kWh]	Saving [kWh]
The exterior walls	200.84	200.84	0.00
The walls of the corridor	1506.28	1151.00	355.28
Adjoining walls	1369.00	1369.00	0.00
Window	0.00	0.00	0.00
Doors	566.60	566.60	0.00
Tiles on earth	402.59	402.59	0.00
Ceiling Tiles	0.00	0.00	0.00
Transmission loss	0.00	0.00	0.00
Infiltrate loss	4045.31	3690.03	355.28
Yield heating system	681.15	681.15	0.00
ENERGY FOR HEATING	4726.46	4371.18	355.28
The surface of the S=62.7 [m^2]	75.38	69.71	5.67

Power transmission losses for different elements of the coat are expressed in the following figure.

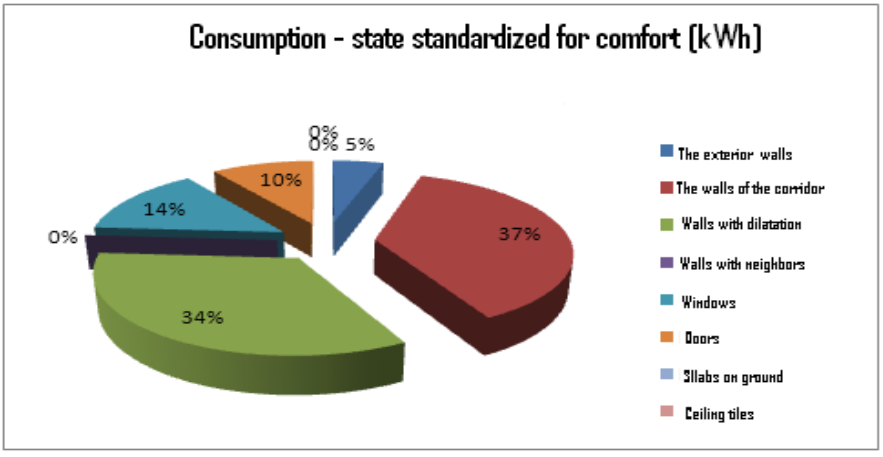

Fig. 2 Losses in transmission

The chart above shows that the greatest losses are in the walls of the corridor, which included the dilatation wall. This is an indicator that there should intervene in isolation, but would technically be possible only by stairs wall insulation. Energy losses from the floor and ceiling are zero because the apartment has other apartments above and below, which we assumed that the standard heated $20^{o}C$. Also, the wall that separates losses neighbor, for the same reason, the losses are calculated as zero.

2.3 Current Loads For Heating

Table 5: Data of electricity for heating

No	Equipments	Quantity	The power unit [kW/h]	Overall power [kW]	Annual hours of use	Annual consumption [kWh]
1	Electric Heating	1	1.5	1.5	480	720
					Total	**720**

Table 6: Data for sanitary hot water

No	Equipments	Quantity	The power unit [kW/h]	Overall power [kW]	Annual hours of use	Annual consumption [kWh]
1	Boiler 80 l	1	2	2	1480	2960
					Total	**2960**

2.4 Current Loads

Table 7: Data on household appliances

No	Equipments	Quantity	The power unit [kW/h]	Overall power [kW]	Annual hours of use	Annual consumption [kWh]
1	Freezer	1	0.35	0.35	1200	420
2	Equipment for boiling water, coffee	1	1	1	365	365
3	Frieze	1	0.5	0.5	750	375
4	Baking oven	1	2	2	200	400
5	Hair dryer	1	1	1	50	50
6	TV	1	0.08	0.08	1825	146
7	Ironing	1	2	2	120	240
8	Washing	1	2.5	2.5	180	450
					Total	**2446**

2.5 Current Loads

Table 8: Data for lighting

No	Equipments	Quantity	The power unit [kW/h]	Overall power [kW]	Annual hours of use	Annual consumption [kWh]
1	CFL bulbs in day care	3	0.011	0.033	1825	60.225
2	CFL bulbs in bedroom	1	0.011	0.011	185	2.035
3	CFL bulbs in bathroom	1	0.011	0.054	185	9.99

4	CFL bulbs in the corridor	1	0.011	0.011	365	4.015
5	CFL bulbs in the kitchen	2	0.011	0.022	730	16.06
6	CFL bulbs in the terrace	1	0.011	0.011	90	0.99
					Total	**93.315**

2.6 Use Of Liquid Petroleum Gas (Lpg)

Annual expenses with LPG in a residential dwellings in Pristina, spent 12-14 with LPG bottles, worth 2 euros.

Table 9: Data for the Liquefied Petroleum Gas (LPG)

An LPG bottle Its weight in liters	2 $[euro]$ 1 botlle = 2.9850 [liters] = 2 [euro]
Price per liter of LPG Months of the year: 12	1 liter = 0.67 [euro/liter] $12*1*2.9850 = 35.820$ [liters/year] $14*1*2.9850 = 41.79$ [liters/year] 35.820 [liters/year]*0.67[euro/liter]=23.99 [euro/year] 41.79 [liters/year]*0.67[euro/liter]=27.99 [euro/year] --- So with LPG annual expenses have cost approximately 24 to 28 euros per year. Calculating the average cost around 26 euros per year.
- Overall total annual gas costs, - Number of proofreading skills in refining the LPG	From 23.99 to 27.99 [euro/year] 12-14 [bottle/year]
- The value of the total amount for an LPG bottle A bottle of LPG per month and its price per liter	2.9850 liters $2\ [euro]/0.67[euro/l] = 2.9850\ [liters]$
Average expenditures for the past three years with LPG Use of LPG in a flat housing	In the household sector, liquefied petroleum gas (LPG) used for preparing various food standards for the preparation of coffee, tea, water heating, etc.
Saving energy	With the use of LPG in a residential dwellings, has a great saving of electricity, so the use of LPG in the household, it is very cheap and useful than the use of electricity at home. From this conclusion, it appears that we have very great saving electricity, replacing it with LPG for a family of three members and high energy efficiency.
DESCRIPTION DETAILS ABOUT THE USE OF LPG IN FLAT	**GENERAL INFORMATION LPG**

2.7 Details For Calculation Of Different Scenarios

Scenarios are taken for calculation:

1. Consumption, which are reported electricity bills and expenses for LPG,
2. Consumption state of comfort, which express the consumption of the apartment in the state in which,
3. Consumption after EE measures that said flat consumption, as implemented energy efficiency measures, and
4. Savings, which expresses the difference between the state of comfort and state standardized after implementation of EE measures.

Table 10: The data reported for the specific consumption and consumption data for standardized comfort

	Reported consumption [kWh/year]	**The situation of comfort [kWh/year]**	**After consumption measures (EE) [kWh/year]**	**Saving [kWh/year]**
The Liquefied Petroleum Gas (LPG)	496.8	496.8	496.8	0.0
Various consumers of electricity	3321.8	4389.32	4389.32	0
Energy for heating		4726.46	4371.18	
Total energy	3818.6	9612.6	9257.3	355.3
The object quadrature [m^2]	Specific Consumption [kWh/ m^2/year]			
S=62.7 [m^2]	60.9	153.3	147.6	5.7

The table above shows that specific apartment has reported consumption of 60.9 [kWh/m^2/year], while consumption is 153.3 standard for comfort [kWh/m^2/year], which means that in terms of missing flat comfort.

3 Conclusions And Recommendations

- Apartment is located on the seventh floor of an apartment building, consisting of eight floors, overlooking the south and surrounded by three sides with three other apartments. K bright enough picture and also to some extent by the warm rays of the sun, which fall directly into the windows of the apartment during the winter season;
- Apartment building is new construction, has insulated exterior wall thickness 10 [cm] and there is no need for additional investments and other, that have high energy saving;
- In calculating the electricity bills, it appears that energy costs are not high, because there saving and careful use of energy. Reason for energy saving, is that instead of electricity is also used liquefied petroleum gas (LPG) for household;
- With the use of LPG for household needs, has high saving electricity, based on the prices of LPG, electricity prices for [kW] and the time of their use in preparation of food and heat;
- Another trigger energy saving is the reason that from 11:00 until 17:00 stopped several electric and LPG, besides a fridge, a freezer and electric boiler are about 24 hours in the grid;
- Based on the above points and findings in electricity bills, it appears that there is room conform to energy saving. So power consumption to the masses is 153.3 [kWh/year], and then pick measures 147.6 [kWh/year], so consumption is 5.7 [kWh/year].

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