



Bratislava 01. 01. 2024

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WE OFFER SOLUTIONS

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CASE STUDY List 11-101-2023

Clean TeQ Water Limited

Bratislava 01.01.2024

INSTALLATION IN MEXICO

HOTEL IN VILLA HERMOSA

REVAMPING & INTEGRATION

DATA COLLECTION

After a technical site inspection, 2015, we proposed to an Hotel located in Villa Hermosa the revamping of the existing heating system by means of an integration with an AWA250-EWP US\$ 380,000.00, in order to provide warm sanitary water.

Moreover the application was aimed to supply:

- ✓ High quality drinkable water for direct consumption and bottling;
- ✓ Fresh airflow for lundries
- ✓ "3 way out productions only one expense"

During the inspection, we collected the following datas:

- Hotel Capacity: 154 double rooms
- Hot water needs: 70%
- Bottle water consumption: 308 bottles ½ litre x day – 7pesos/each
- Drinkable water consumption: 1.000lt/day – 1.4pesos/lt
- Sanitary hot water consumption: 43.000lt/day – 200lt/pp
- Price for 1 LPG/lt: 7.47pesos
- 1kWh cost: 0,8243pesos



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TECHNICAL PROPOSAL

Estimated an average water production, using the AWA 250 in that “particular” application, 1.500litres daily with an energy consumption of about 0,5kWh/lt (32kW average energy absorption).

In order to fulfil the required water amount (1154lt/day), they were enough only 18h of AWA 250 working time.

The estimated time was enough to provide the request of sanitary water heating, without further energy consumptions.

The feasibility study shown that, with 576kWh/daily consumption, it was possible produce 1.154lt of drinkable water and heat up about 43.000lt of sanitary water at 38°C.

Moreover the Model contemporaneously delivered fresh airflow of about 8000mc/h



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APPLICATION RESULTS

On the basis of the collected data, were calculated the following results:

- Average energy consumption of 0,491kWh/lt
- Water production on 24h working time: 1.595lt
- AWA energy consumption on 24hworking time: 783kWh
- Daily LPG saving: 210lt
- Fresh airflow delivered: 8.000mc/h

Comparing the project data with the results in the field, all the estimated performances were perfectly fulfilled in terms of water and energy consumption.

The heating of the sanitary water was perfectly performed even if the hydraulic circuit was not built in accordance with our indications so we seatted the water output temperature at 56°C with an energy loss.

The Hotel Owners decided, after the comparing of the results, to keep the AWA turned on 24h daily and use all the water overproduction for the kitchen uses.



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ECONOMIC ANALYSIS

Economic data:

- ✓ Drinkable Water purchase: $1.436\text{lt} \times 1,4\text{pesos/lt} = 2010,4\text{pesos/day}$
- ✓ Bottled Drinkable Water purchase: $154\text{lt} \times 7\text{pesos/lt} = 1078\text{pesos/day}$
- ✓ LPG consumption: $210\text{lt} \times 7.47\text{pesos/lt} = 1568\text{pesos/day}$

Full daily Income

4656.4pesos/day

Production:

- Drinkable Water: 1590lt/day
- Sanitary hot Water38*C: 31376lt/day

FULL PRODUCTION COST:

$783\text{kWh} \times 0,8243\text{pesos} = 645\text{pesos/day}$

Daily savings:

4010.6pesos/day

Gross Yearly Savings: $4010.6 \times 365\text{days}$

1.463.859pesos/year

Net Yearly Savings: $1.463.859 - 185.280(\text{year/maintenance})$

1.278.579pesos/year



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ECONOMIC ANALYSIS

SAVINGS due to Fresh Air Providing:

The providing of fresh dry air can be used in Guest's rooms as well as in common areas and/or service areas like kitchen and laundry.

Average temperature and humidity in Villa Hermosa are: 26,6°C and 76%Humidity
AWA 250 production is 8.000m³/h at: 23°C and 55%Humidity

To treat 8.000m³/h and pass from 26,6°C and 76%Humidity to 23°C and 55%Humidity,

Takes 18.57kW using an (EER3)

The use of the AWA250 means a saving of more than 162673kWh, in money 134.091,35pesos/year

The FULL saving is

1.412.670,11pesos/yearly

Withoout considering that the installation of an EER3 system costs, more or less, \$ 25.000



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CONCLUSIONS

We provided an integration between the AWA250 and the existing heating system of the Hotel in order to achieve a revamping of the site and produce, at the same time, high quality drinkable water.

We proposed to deliver Fresh Air, produce from AWA 250 to the Hotel Lundries and Kitchens

The AWA integrations with the existing lines allowed to save the full amount of LGP needed to heat up the Sanitary Water required by the Hotel Customers, in fact the AWA production of thermal energy was more than enough to provide the required heating even in case of 100% full booked condition.

The economic analysis show, without any doubt, a short term economic return in case of Hotels as well as Hospitals or any building connected with urbanizations lines. Much more strategic is the use of our Models in case of the lack of water/drinkable water, energy in rural areas.