CATERING FOR A SUSTAINABLE FUTURE GROUP

ENERGY BENCHMARKS FOR CATERING FACILITIES

Themed Restaurant:

This facility has a bar and reception area which forms part of the seating area with the furniture being closely grouped. The menu is limited with some fresh food; however the majority of the menu is based on convenience food.

Themed Restaurant Energy Consumption Mix

42% Environmental & 58% Operational

Area required for 100 seats:

Seating area	100 x 1.6m² = 160m²
Bar area	100 x 0.2m² = 20m²
Production	100 x 0.6m² = 60m²
Cloakrooms etc	100 x 0.02m² = 20m²

Total area required 260m²

Seating Turnover:

3 Times per Day

Number of Meals

Number of seats x Daily Turnover per seat x Trading Days = Number of Covers

100 x 3 x 365 = 109,500 meals.

TYPICAL:

Total Energy Consumption per Year

Fossil Fuel 260m² x 1250 Kwh - m² - per year	=	325,000 Kw
Electricity 260m² x 730 Kwh - m² - per year	=	189,800 Kw
Total 260m² x 1980 Kwh - m² - per year	**=**	**514,800 Kw**

Environmental Energy Consumption per Year

Fossil Fuel 325,000 Kw x 42% = 136,500 Kw (525 Kwh/m²)
Electricity 189,800 Kw x 42% = 79,716 Kw (307 Kwh/m²)

Total 514,800 Kw x 42% = 216,216 Kw (832 Kwh/m²)

Operational Energy Consumption per Year

Fossil Fuel 325,000 Kw x 58% = 188,500 Kw
Electricity 189,800 Kw x 58% = 110,084 Kw

Total 514,800 Kw x 58% = 298,584 Kw

Operational Energy Consumption per Meal

Energy Consumption ÷ Number of Covers

Fossil Fuel 188,500 Kw ÷ 109,500 = 1.72 Kw per meal
Electricity 110,084 Kw ÷ 109,500 = 1.01 Kw per meal

Total 298,584 Kw ÷ 109,500 = 2.73 Kw per meal

Annual CO_2 Emission Levels

Environmental Emissions
Fossil Fuel 136,500 x 0.19 = 25,935 kg CO_2
Electricity 79,716 x 0.43 = 34,278 kg CO_2

Operational Emissions
Fossil Fuel 188,500 x 0.19 = 35,815 kg CO_2
Electricity 110,084 x 0.43 = 47,336 kg CO_2

Total Emissions 143,364 kg CO_2 (39,138 Kg Carbon)

143,364 kg CO_2 ÷ 109,500 = 1.31 kg CO_2 per meal
(0.273 kg Carbon per meal)

GOOD PRACTICE:

Total Energy Consumption per Year

Fossil Fuel 260m² x 1100 kWh - m² - per year = 286,000 Kw
Electricity 260m² x 650 kWh - m² - per year = 169,000 Kw

Total 260m² x 1750 kWh - m² - per year = 455,000 Kw

Environmental Energy Consumption per Year

Fossil Fuel 286,000 Kw x 42% = 120,120 Kw (462 Kwh/m²)
Electricity 169,000 Kw x 42% = 70,980 Kw (273 Kwh/m²)

Total 455,000 Kw x 42% = 191,100 Kw (735 Kwh/m²)

Operational Energy Consumption per Year

Fossil Fuel 286,000 Kw x 58% = 165,880 Kw
Electricity 169,000 Kw x 58% = 98,020 Kw

Total 455,000 Kw x 58% = 263,900 Kw

Operational Energy Consumption per Meal

Energy Consumption ÷ Number of Covers

Fossil Fuel 165,880 Kw ÷ 109,500 = 1.52 Kw per meal
Electricity 98,020 Kw ÷ 109,500 = 0.89 Kw per meal

Total 263,900 Kw ÷ 109,500 = 2.41 Kw per meal

Annual CO_2 Emission Levels

Environmental Emissions
Fossil Fuel 120,120 x 0.19 = 22,823 kg CO_2
Electricity 70,980 x 0.43 = 30,521 kg CO_2

Operational Emissions
Fossil Fuel 165,880 x 0.19 = 31,517 kg CO_2
Electricity 98,020 x 0.43 = 42,149 kg CO_2

Total Emissions 127,010 kg CO_2 (34,674 Kg Carbon)

127,010 kg CO_2 ÷ 109,500 = 1.16 kg CO_2 per meal
(0.317 kg Carbon per meal)

The annual reduction in carbon by adopting Good Practice for this facility is 4,464 kg Carbon (11.4%)

By using Good Practice and a mixture of fossil fuel and electricity this facility will discharge 127,010 kg CO_2 /Kwh per year and this would increase to 195,650 kg CO_2 /Kwh per year, a 54% increase if it was run only on electricity supplied from the national grid.

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