

August 21, 2001
Revised August 28, 2001
Revised January 17, 2002
Revised January 18, 2002



Mr. Kevin Lindquist
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*New York
Cambridge
Los Angeles
Princeton
Washington D.C.
San Francisco
Phoenix
Las Vegas
Philadelphia
San Diego*

Re: 2000 Avenue of the Stars
Energy Report
Syska & Hennessy Project No. CCE-01

Dear Kevin:

Per your request, we have estimated the energy and water usage for the existing ABC Entertainment Center and the new proposed 2000 Avenue of the Stars project. You may find the following information useful:

1. Using a Title 24 model for the operating hours and space thermostat settings, the source energy consumption of the existing entertainment center buildings (2020 and 2040 Avenue of the Stars) in full use is estimated at 168,000 BTUH/sf. This would equate to approximately 16.4 kWh/sf of building electrical energy usage. At this rate of consumption, assuming the building has a total conditioned area of 678,822 sf, the total building electrical energy consumption would be 11,132,680 kWh.
2. Annual source energy consumption of the new proposed building is estimated at 104,000 BTUH/sf. This would equate to approximately 10.15 kWh/ sf of building electrical energy usage. At this rate of consumption, assuming the building has a total conditioned area of 778,947 sf, the total building electrical energy consumption would be 7,911,952 kWh.
3. Annual Domestic Water consumption of the existing entertainment center in full use is estimated at 27,750 HCF (0.0408 HCF/sf).
4. Annual Domestic Water consumption of the new proposed building in full use is estimated at 22,000 HCF (0.0286 HCF/sf).
5. The above information indicates that the new building will use 38% less source energy per square foot and 44% less water usage per square foot compared to the existing buildings.

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Please note that the above estimates are based on a number of rough estimates, the Engineer's judgments based on past experience, and certain fixed operating hours; these estimates are for comparative purposes only. Syska & Hennessy does not guarantee that the actual consumption of these buildings would be the same or similar to the above stated numbers.

Please call me if you have any additional questions or comments.

Very truly yours,

SYSKA & HENNESSY

A handwritten signature in black ink, appearing to read "Ali SL".

Ali Sherafat, P.E.

Senior Vice President

cc: Travis Cullen, Envicom Corporation

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SUPPORTING INFORMATION FOR KWH CONSUMPTION

1. Source Energy Consumption for Existing Building \cong 168,000 BTUH/sf/year
 - a. Building Electrical Energy per Square Foot: $168,000 \div 3 \div 3,413 = 16.4$ KWH/sf/year
 - b. Building Electrical Energy Consumption: $16.4 \text{ KWH/sf/year} \times 678,822 \text{ sf} = 11,132,680 \text{ KWH}$

2. Source Energy Consumption for New Proposed Building \cong 104,000 BTUH/sf/year
 - a. Building Electrical Energy per Square Foot: $104,000 \div 3 \div 3,413 = 10.15$ KWH/sf/year
 - b. Building Electrical Energy Consumption: $10.15 \text{ KWH/sf/year} \times 778,947 \text{ sf} = 7,911,952 \text{ KWH}$

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Domestic Water Usage of Proposed 12-Story Office Building

- In a typical office building a typical employee usage of domestic water is 15 gallons/day (see Attachment A). The 15-gallon/day-flow rate was used with water closets having 3.5 gallons per flush, urinals having 3.0 gallons per flush and lavatories with flow restrictor.

To adjust the 15-gallons/day/employee flow rate to be in conjunction to today's code approved toilet fixtures, we use 75% of the 15 gallons/day, so

$$15 \text{ gallons/day} \times 75\% = 11.25 \text{ gallons/day/employee}$$

The code approved toilet fixtures shall have this: water closet to be 1.6 gallons per flush, urinal to be 1.0 gallons per flush and lavatories to have 0.5 gallons per minimum flow control.

- For Restaurant use
from Attachment A
use 9 gallons/day/customer
- For Retail
from Attachment A
use 10 gallons/day/employee
- For Cultural
from Attachment A
use 3 gallons/day/person

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2000 Avenue of the Stars

1. Office Use Area = 719,924 square feet
Total # of people in the building, assuming 130 square feet person
719,924 square feet/130 square feet person = 5,537 people @ 100% Leased
Water consumption/day = 11.25 gallons/day/employee x 5,537 people
= 62,291 gallons/day
Using 20 days/month
Total water consumption/month = 20 days/month x 61,436 gallons/day
= 1,245,820 gallons/month

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2. Restaurant Use = 30,527 square feet

Total # of people including employees, assuming 130 square feet/person

30,527 square feet/130 square feet/seat = 234 seat

Water Consumption/day = 20 gallons/day/customer x 234 seat
= 4,680 gallons/day

Using 30 days/month

Total Water Consumption/month = 30 days/month x 4,680 gallons/day
= 140,400 gallons/month

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3. For Retail Use = 18,318 square feet

Total # of people in the building, assuming 130 square feet/person

18,318 square feet/130 square feet/person = 140 people

Water consumption/day = 10 gallons/day/customer x 140 people
= 1,400 gallons/day

Opened 30 days/month

Total water consumption/month = 1,400 gallons/day x 30 days/month
= 42,000 gallons/month

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4. For Cultural Use Area = 10,178 square feet
Total # of people in the building, assuming 130 square feet/person
10,178 square feet/130 square feet/person = 78 people
Water consumption/day = 3 gallons/day/person x 78 people
= 234 gallons/day
Using 30 days/month
Total water consumption/month = 30 days/month x 234 gallons/day
= 7,020 gallons/month

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Total Water Consumption for All Usage

1. Office	1,245,820 gallons/month
2. Restaurant	140,400 gallons/month
3. Retail	42,000 gallons/month
4. Cultural	<u>7,020 gallons/month</u>
	1,435,240 gallons/month

Converting: 1 HCF = 748 gallons

1,435,240 gallons/month/748 gallons/HCF = 1,918.8

Total Water Usage in HCF/month = 1,918.8 HCF/month

(New) 1,918.8 HCF x 12 months = 23,026 HCF/year

From DWP (L.A.) Attachment B using
 1998 Water Bill History @ 94% occupied = 25,615 HCF/year

(Existing) 25,615 HCF/year/94% = 27,250 HCF/year

27,250 HCF/year @ 100% occupied

Using 1999 Water Bill History @ 94% occupied = 22,120 HCF/year

(Existing) 22,120 HCF/year/94% = 23,531.915 HCF/year

23,531.915 HCF/year @ 100% occupied

Using 2000 Water Bill History @ 94% occupied = 24,820 HCF/year

(Existing) 24,820 HCF/year/94% = 26,404.255 HCF/year

(New) [(23,026 HCF/year)/365 days] x 748 g/HCF = 47,188 Avg. Gal./Day

(Existing) [(27,250 HCF/year)/365 days] x 748 g/HCF = 55,844 Avg. Gal./Day

Net Difference = -8,656 Avg. Gal./Day

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Attachment A¹ Typical Rates of Water Use for Commercial Facilities²

User	Unit	Flow, Gallons/Unit d		
		Range	Typical	
Airport	Passenger	4-5	3	
Apartment House	Person	100-200	100	
Automobile Service Station	Employee	8-15	13	
	Vehicle Served	8-15	10	
Boarding House	Person	25-50	40	
Department Store	Toilet Room	400-600	550	
	Employee	8-13	10	
Hotel	Guest	40-60	50	
	Employee	8-13	10	
Lodging House and tourist Home	Guest	30-50	40	
Motel	Guest	25-40	35	
Motel with Kitchen	Guest	25-60	40	
Laundry (Self-Service)	Machine	400-650	550	
	Wash	45-55	50	
Office	Employee	8-20	15	
Public Lavatory	User	3-6	5	
Restaurant (including Toilet)	Conventional	Customer	8-10	9
			3-8	6
	Bar and Cocktail Lounge	Customer	2-4	3
			Seat	15-25
Shopping Center	Parking Space	1-3	2	
	Employee	8-13	10	
Theater	Indoor	Seat	2-4	3
	Outdoor	Car	3-5	4

Note: Gallon x 3.7854 = L

¹ "Waste Water Engineering Treatment, Disposal and Reuse", Third Edition, Metcalf & Eddy Inc.. Revised by George Tchobanoglous and Franklin L. Burton, McGraw Hill Publishing Company, New York.

² Adapted in part from Refs. 7 and 8.

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**ENTERTAINMENT CENTER LLC
2020-2040 AVENUE OF THE STARS
WATER BILL HISTORY
Attachment B**

Read Date	HCF	Cost
01/13/98	2,935	\$9,545.13
02/12/98	2,405	\$7,951.19
03/13/98	2,215.	\$7,331.38
04/13/98	2,220.	\$7,384.44
5/12/98	1,720.	\$5,785.46
06/11/98	1,845.	\$6,538.57
07/13/98	1,890	\$7,216.42
08/11/98	2,275.	\$8,541.68
09/10/98	1,990.	\$7,470.62
10/09/98	2,195	\$8,243.39
11/10/98	2,130	\$7,660.52
12/11/98	<u>1,795</u>	<u>\$5,840.81</u>
Totals	25,615	\$89,509.61
01/14/99	1,910	\$6,191.55
02/16/99	2,313	\$7,449.62
03/16/99	1,932	\$6,239.60
04/14/99	1,591	\$5,218.27
05/13/99	1,584	\$5,262.26
06/14/99	1,940	\$6,870.32
07/14/99	1,670	\$6,384.77
08/12/99	1,790	\$6,811.10
09/10/99	1,850	\$7,039.40
10/12/99	1,980	\$7,555.60
11/10/99	1,840	\$6,671.52
12/10/9	<u>1,720</u>	<u>\$5,560.31</u>
Totals	22,120	\$77,254.32
01/13/00	1,840	\$5,957.20
02/12/00	2,081	\$6,753.69
03/13/00	1,744	\$5,677.64
04/11/00	2,225	\$7,253.68
05/10/00	1,880	\$6,198.11
06/09/00	2,135	\$7,449.38
07/1/00	2,710	\$11,030.69
08/09/00	2,215	\$8,987.58
09/08/00	2,025	\$8,216.73
10/10/00	2,035	\$8,235.04
11/08/00	1,925	\$7,463.65
12/11/00	<u>2,005</u>	<u>\$7,003.61</u>
Totals	24,820	\$90,227.00
01/12/01	1,825	\$6,410.69

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