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Evaluating Office Lighting Environments: Reference Lighting Power Density Data

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345 East 47th Street
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ABSTRACT

This document reports on an exercise in archiving in situ lighting power densities for occupied office lighting environments. Using data from a previous study where field surveys of existing lighting installations were recorded, the present study extends these data to include referencable lighting power densities for the installed conditions. In addition, theoretical alternate ANSI lighting power densities were computed assuming one-for-one replacement with either energy saving or standard lamps and ballasts.

Keywords: Lighting power density; unit power density; energy performance; lighting energy standards; occupant satisfaction

CONTENTS

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Assistance was received from a number of individuals throughout the scope of the project. Substantial technical support was provided by Belinda Collins and Art Rubin at the National Bureau of Standards, as well as from Harry Lobdell representing the National Electrical Manufacturers Association. Advisory and administrative support was provided by Thomas Schneider and Richard Vincent of the Lighting Research Institute. Will Fisher provided valuable insight during the review process.

The extended study built upon an earlier effort which supplied the raw field data. The original work was supported jointly by the New York State Energy Research and Development Authority, and the Office of Buildings and Community Systems, United States Department of Energy. Robert W. Marans and his colleagues at the Institute for Social Research, University of Michigan, were instrumental in developing the questionnaires and survey procedures in the original study.

1. BACKGROUND

With the concern over reducing the energy consumption in buildings, several professional societies, government organizations and others have been exploring strategies to conserve energy in new buildings. As research in this area has progressed, lighting has surfaced as an important area for potential energy savings. As a result, major reductions have been suggested in the unit power density (UPD)[1] limits used in many building energy standards. These lower numbers, however, differ from those previously recommended by the Illuminating Engineering Society of North America. For example, the base UPD suggested by the draft ASHRAE/IES Standard 90.1R [1] for small enclosed offices shows a reduction of 18 percent for reading and typing tasks to as much as 53 percent for drafting tasks as compared to the original IES Lighting Energy Management document LEM1 [2]. While attractive from an energy standpoint, these lower limits were suggested from modifications in hypothetical lighting systems (computer simulated scenarios) where the impact on the quality of the visual environment was never fully assessed. Also, they do not account for the realities of space use and operational conditions. Unfortunately, measured data have been lacking to date in support of specific lighting power numbers.

Under the auspices of the U.S. Department of Energy and the New York State Energy Research and Development Authority, an earlier research project was initiated to develop a reference set of archival data to help bridge this gap [3]. As part of that project, extensive field measurements were made at several hundred work stations in thirteen office buildings, and collected into a database archived at the National Bureau of Standards [4]. The project scope, however, did not allow for detailed documentation of the lighting system characteristics. Furthermore, some concern was expressed over the lamp/ballast wattages used since they were estimated rather than measured. To supplement the existing data with more referencable lamp/ballast data, and complete the documentation of the lighting power data, an extended documentation program was initiated by the National Electrical Manufacturers Association (NEMA) and the Lighting Research Institute (LRI), in collaboration with the Lighting Group at the National Bureau of Standards.

A full discussion of how the original data were obtained can be found in the methodology report [3]. Of interest in this extended study is the power density data recorded during the field measurements. The connected lighting power load and the floor areas for each work station were determined from drawings, photographs, and field surveys for 912 work stations from thirteen office buildings. Originally, the lamp and ballast wattages were determined by visual inspection, examining the

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1 Throughout this study the term lighting power density (LPD) is used in lieu of unit power density to distinguish the measured quantity, LPD, from the prescribed quantity, UPD.

luminaire and assigning wattages based on observed characteristics. The weakness in this approach is that the ballasts are not directly observable: only by disconnecting and disassembling the unit and making individual measurements could the actual input wattages be determined. However, since the lighting systems were well documented, including the type of fixtures, lamps, ballasts, and control media, it was possible in the extended study to augment the database with lamp and ballast wattages conforming to the ANSI C82.2 test method [5]. In this way, more referencable lighting power data associated with the lighting conditions in occupied spaces were developed, including the consideration for ballast and thermal factors in specific luminaires having various lamp/ballast combinations.

2. SCOPE OF CURRENT STUDY

There were two general thrusts to the present NEMA/LRI project. First, data review, editing, and additional documentation were done to reconstruct lighting power densities based on a consistent procedure for obtaining lamp/ballast input wattages. These new data were added to the archival database. The second was to extend the database to include alternative ANSI power densities for four different lamp/ballast combinations.

3. PROCEDURE FOR OBTAINING POWER DENSITY DATA

The compilation of lighting power density data involved obtaining the in situ lamp and ballast characteristics for all luminaires in and around each work station, and assigning fixture wattages and floor areas associated with these wattages. The luminaire characteristics for portable and stationary units were obtained by a combination of field observations and reviewing drawings and photographs of the space. Once the lamp, ballast, and fixture characteristics were recorded, tables for each luminaire with a unique lamp/ballast combination (Appendix A) were prepared. Fixture category assignments, Table 1, were employed to arrange the various fixture mountings into four representative categories for obtaining luminaire thermal factors. Working in conjunction with the NEMA Lighting Divisional Technical Advisory Committee, ANSI input wattages were established for the individual lamp/ballast combinations based on laboratory measurements following the ANSI C82.2 test method[2]. Also in consultation with the NEMA Committee, luminaire thermal correction factors were assigned for the various lamp/ballast, and louver/lens combinations (Tables 2, 3, and 4). Thus, the installed input wattages conformed to the ANSI wattages, with the correction factors applied.

The lighting power density for the space was computed as follows:

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2 ANSI C82.2 test results were provided by the NEMA Lighting Divisional Technical Advisory Committee.

$$\text{LPD} = \frac{\text{Wattage for zone lighting}}{\text{Zone area}} + \frac{\text{Wattage for task lighting}}{\text{Work station area}}$$

where,

LPD = total lighting power density associated with the specified work station

Zone = space enclosed by walls, such as a fully enclosed office or the bay where cubicles reside.

Work station area = personal space area (defined on pages 79-81 in reference [3]).

4. PROCEDURE FOR OBTAINING ALTERNATE ANSI POWER DENSITY DATA

In addition to the installed lighting power density, LPD, four alternative lighting power densities were computed using only the ANSI C82.2 reference wattages. Here, theoretical scenarios were generated analytically assuming a one-for-one substitution of lamps and/or ballasts, replacing the existing equipment in the occupied space with either standard or energy saving alternatives. No changes were made in the work station or fixture data, other than the ballast and lamp wattage. It should be noted that although the operating conditions with the substituted equipment would be similar, they would not be identical since luminaire light output varies depending on the particular lamp and ballast combination. No attempt was made to evaluate the potential differences in measured illuminance or luminance attributable to the four different lamps and ballasts described. The first scenario assumed that all the luminaires in the database had energy saving lamps and energy saving ballasts, where available. The second scenario assumed that the luminaires had energy saving lamps and standard ballasts, and the third scenario used only energy saving ballasts with standard lamps. The last scenario assumed that standard lamps and standard ballasts were used throughout. Unlike the input wattage for the installed power densities, the ANSI alternative power densities did not employ the luminaire thermal factors.

5. SUMMARY OF RESULTS

The lighting power densities for each work station are given in Appendix B and summarized in tables 5 and 6. A frequency distribution of all lighting power densities is given in figure 1. Inspection of the figure reveals that the most frequently occurring LPD band is 20 w/m^2 (1.9 w/ft^2) with 15 percent of the sample. Fourteen percent of the sample is below 20 w/m^2, 52 percent between 20 and 29 w/m^2 (2.7 w/ft^2), 26 percent between 30 w/m^2 (2.8 w/ft^2) and 39 w/m^2 (3.6 w/ft^2), and 8 percent above 40 w/m^2 (3.7 w/ft^2). Since both the unit power density limits presently in use and currently under consideration in LEM-1 and Standard 90.1R are between 19.4 w/m^2 (1.8 w/ft^2) and 50.6

w/m^2 (4.7 w/ft^2), depending on the task type and the room geometry, the present data can be considered comparable to the range of lighting power densities specified by various existing standards in place and under revision.

Figure 2 presents the distribution of lighting power densities for each type of ambient lighting system. The maximum and the minimum (the range) are shown along with the standard deviation about the mean for the seven lighting systems. By inspection, no one type of lighting system appears to be substantially different in terms of mean power densities. It is important to note that the mean for each system type is between 23 and 31 watts per square meter (2.1 and 2.9 w/ft^2, respectively) (table 5). The three direct fluorescent systems (DRFLV, DRFLN, DF-SM) have a broad range of power densities, with the recessed lensed system (DRFLN) providing one of the lowest means while the surface mounted system (DF-SM) has the highest mean score. On the other hand, the fluorescent indirect systems (IF-FM, INDF-P) both show higher power densities. The other two pendant mounted systems, the direct/indirect fluorescent (DIF-P) and the metal halide indirect (HID-P), show lower mean power densities as well as a more constricted range.

An another data plot is shown in figure 3. Here all work stations are grouped by presence and type of task lighting. The combined data for all work stations are shown to the left, and to the right, the same data are grouped into one of three categories: 1) work stations with no local task units, 2) work stations with furniture integrated task units, and 3) work stations with desk mounted movable task units. Figure 3 clearly shows an increase in the power density for work stations with task units, particularly if they are movable. The mean LPD for work stations without task lighting is 21.7 w/m^2 (2.02 w/ft^2) as compared to that for work stations with furniture integrated task lighting of 28.9 w/m^2 (2.69 w/ft^2), and that for work stations with movable task lighting of 34.4 w/m^2 (3.20 w/ft^2).

The mean lighting power density for all work stations is 26.7 w/m^2 (2.48 w/ft^2). Table 5 suggests that if energy saving lamps and energy saving ballasts[3] were used where possible, the mean would be 23.8 w/m^2 (2.21 w/ft^2), and if no energy saving lamps or ballasts were used the mean would be 29.7 w/m^2 (2.76 w/ft^2). Thus, a 20 percent reduction in lighting power density can be attributed to the use of efficient components in the installed lighting systems covered in the database. In addition, table 1 implies that the bulk of this improvement (12 percent) can be attributed to the use of energy saving lamps.

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3 As defined by the NEMA Lighting Divisional Technical Advisory Committee.

6. CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER WORK

In conclusion, the lighting power data examined have revealed a wide range of power densities contained in the database. The review and editing of the LPD data have successfully created a unique database of reference lighting power data from a range of lighting system types. The 912 work stations are from 13 office buildings representing a variety of construction types, including government (state and federal), university, speculative, and corporate offices. To the best of the author's knowledge, the database described here is the most sizable and unique collection of information about LPD's in existing buildings. Obviously, 13 buildings cannot represent the entire national building stock, but they do represent a beginning and do provide information about what is actually being done in lighting practice over the last two decades.

The data show a substantial range in lighting power densities for each lighting system with no one system (in terms of mounting type) clearly superior to the others. However, the data have revealed that task lighting plays a key role in increasing the lighting power density of a work station. In addition, the alternative energy scenarios have underscored the value of energy saving lamps and ballasts. The analysis in the present paper indicates that while several of these buildings are already using energy efficient lamps and energy efficient ballasts, the potential still exist for additional energy reduction by simply a more extensive application of energy efficient equipment in existing buildings.

Several areas of further work are suggested:

* The shape of the distribution curves in figure 1 is non-gaussian. It was assumed that this can be explained solely by the presence of multiple lighting systems displayed together. This should be tested.

* Task lighting appears to be associated with higher lighting power densities. The cause for this needs to be explored.

* The database contains occupant satisfaction measures that need to be explored in relation to the revised power data.

* Several factors, such as room geometry and room size, type of lighting system, type of work station, and type of work activity, appear to be related to lighting power density. These factors and their impact should be evaluated.

* A variety of work station types, visual task types, lighting system types (beyond the seven groups in figure 2), and other group types are present in the database. The data need to be analyzed into work stations of comparable characteristics and evaluated.

* The relationship between LPD's and the task illuminances need to be explored.

* The impact of daylighting on the illuminance at the work stations needs to be explored, including an assessment of the effect on user satisfaction. If a sufficient number of work stations without daylighting can be identified, these should be evaluated separately.

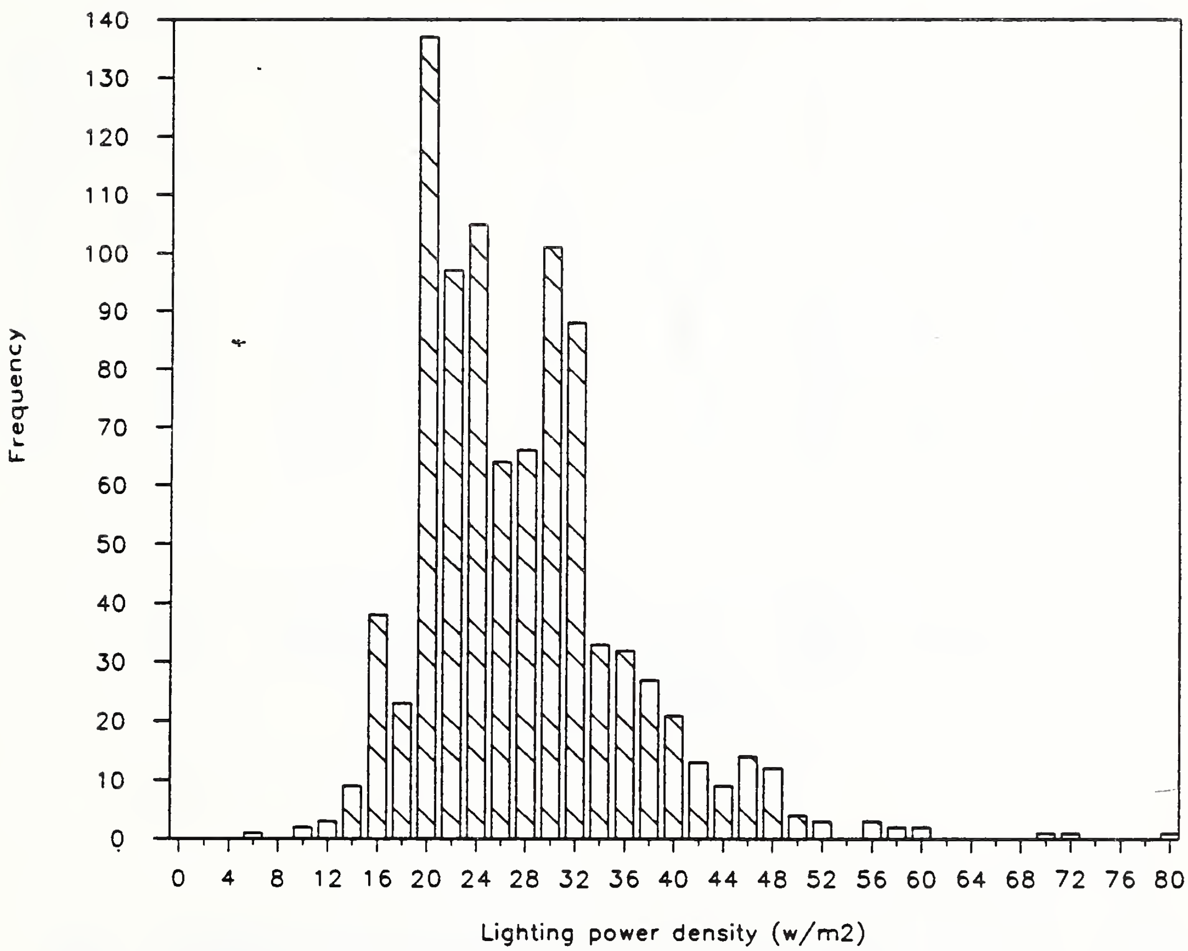
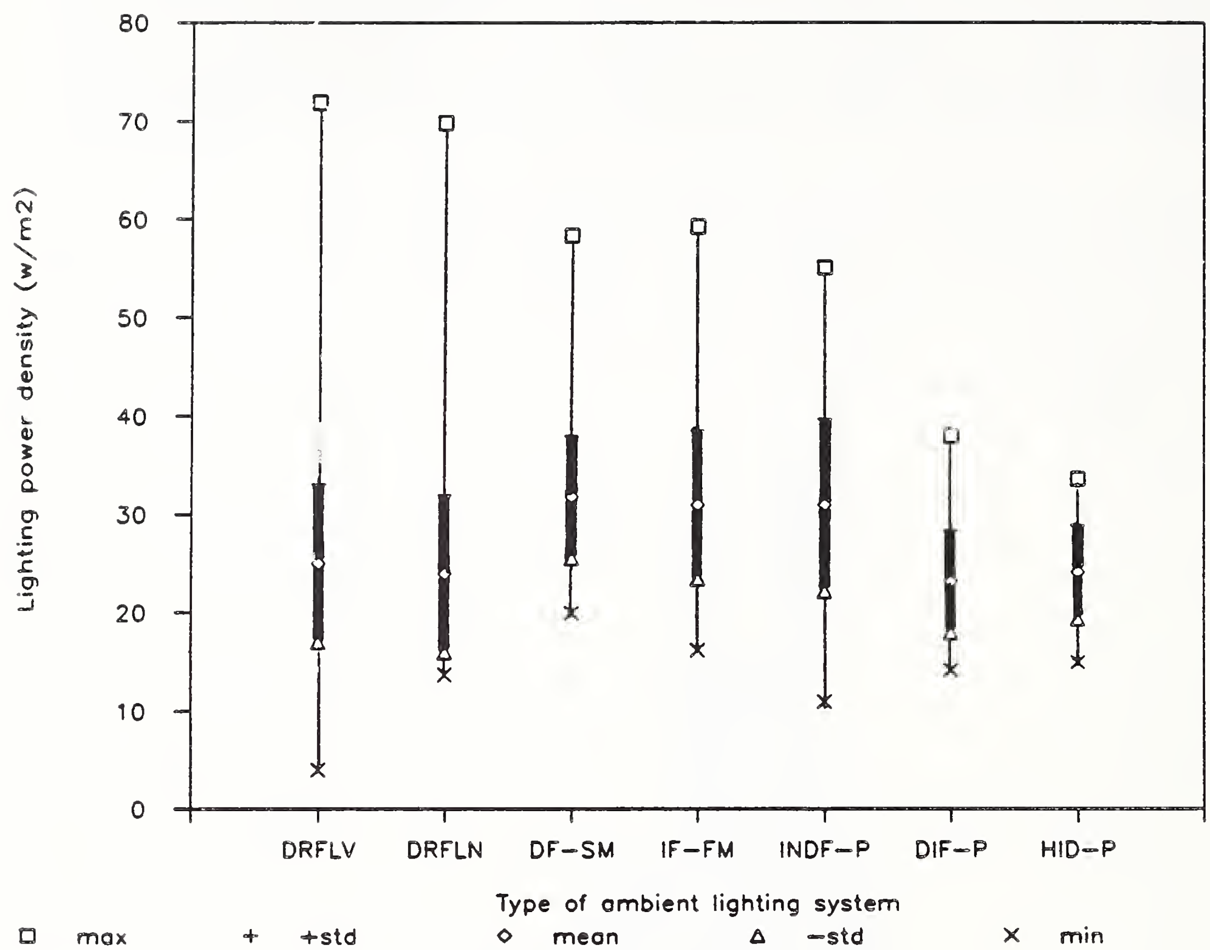
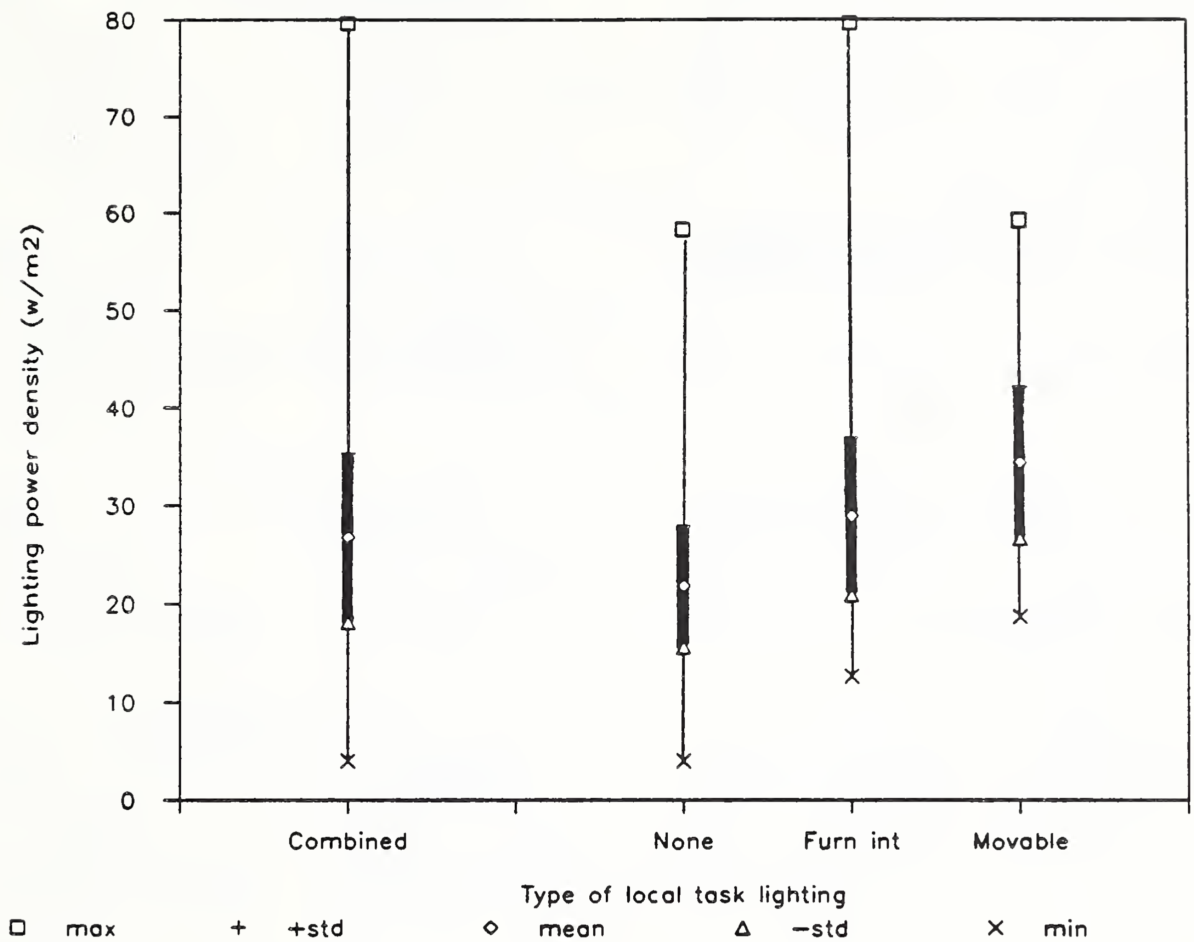


Figure 1
Lighting power density histogram for all work stations



DRFLV = Direct recessed fluorescent units with louvers
DRFLN = Direct recessed fluorescent units with prismatic lens
DF-SM = Direct fluorescent surface mounted units with egg crates
IF-FM = Indirect fluorescent furniture mounted units
INDF-P= Indirect fluorescent pendant mounted units
DIF-P = Direct/indirect fluorescent pendant mounted units
HID-P = High intensity discharge (metal halide) indirect pendant mounted units

Figure 2
Lighting power distribution by lighting system



Combined = all work stations
None = work stations without local task units
Furn int = work stations with furniture integrated task units
Movable = work stations with desk mounted movable task units

Figure 3
Lighting power density by type of task lighting

Table 1
Fixture category assignment

Fixture Mounting	Category to Use
Recessed Ceiling	Recessed Category
Cove	
Furniture Mounted Indirect Fluorescent	
Wall Wash	
Wall Panel	
Ceiling Wall Wash	
Ceiling Wash Indirect Fluorescent	
Furniture Indirect Fluorescent	
Pendant	Pendant Category
Drafting Unit	
Desk Unit	
Surface Ceiling	Surface Category
Ceiling Surface	
Under Shelf	
Above Shelf	
Surface Wall Wash	
Shelf Box Unit	
Free Standing	Use standard wattage input
Recessed Can	
Track Ceiling	

Table 2
Recessed category input wattage

1x4 Single Lamp F40T12-

Lamp	Ballast	ANSI	Louver	Lens
1 standard	standard	57	-3 = 54	-4 = 53
1 standard	energy saving	50	-2 = 48	-3 = 47
1 energy saving	standard	50	-1 = 49	-2 = 48
1 energy saving	energy saving	43	-1 = 42	-1 = 42

1x4 Single Lamp F40T12 (Tandem Ballast)-

Lamp	Ballast	ANSI	Louver	Lens
1 standard	1/2 standard	48	-2 = 46	-3 = 45
1 standard	1/2 energy saving	43	-1 = 42	-2 = 41
1 energy saving	1/2 standard	41	-1 = 40	-1 = 40
1 energy saving	1/2 energy saving	36	0 = 36	0 = 36

1x4 2 Lamp F40T12-

Lamp	Ballast	ANSI	Louver	Lens
2 standard	standard	96	-7 = 89	-8 = 88
2 standard	energy saving	86	-5 = 81	-6 = 80
2 energy saving	standard	82	-4 = 78	-5 = 77
2 energy saving	energy saving	72	-3 = 69	-3 = 69

2x4 2 Lamp F40T12-

Lamp	Ballast	ANSI	Louver	Lens
2 standard	standard	96	-6 = 90	-7 = 89
2 standard	energy saving	86	-4 = 82	-5 = 81
2 energy saving	standard	82	-3 = 79	-4 = 78
2 energy saving	energy saving	72	-2 = 70	-2 = 70

2x4 3 Lamp F40T12-

Lamp	Ballast	ANSI	Louver	Lens
3 standard	1+1 Standard	153	-10 =143	-11 =142
3 standard	1+1 Energy saving	136	-6 =130	-7 =129
3 Energy saving	1+1 Standard	132	-5 =127	-5 =127
3 Energy saving	1+1 Energy saving	115	-3 =112	-4 =111

2x4 3 Lamp F40T12 (Tandem Ballast)-

Lamp	Ballast	ANSI	Louver	Lens
3 standard	1 1/2 Standard	144	-9 =135	-10 =134
3 standard	1 1/2 Energy saving	129	-5 =124	-6 =123
3 energy saving	1 1/2 Standard	123	-4 =119	-4 =119
3 energy saving	1 1/2 Energy saving	108	-2 =106	-3 =105

2x4 4 Lamp F40T12-

Lamp	Ballast	ANSI	Louver	Lens
4 standard	2 standard	196	-12 =180	-16 =176
4 standard	2 energy saving	172	-8 =164	-12 =160
4 energy saving	2 standard	164	-5 =159	-9 =155
4 energy saving	2 energy saving	144	-4 =140	-6 =138

Table 3
Surface category input wattage

Single Lamp F40T12-

Lamp	Ballast	ANSI	Louver	Lens
1 standard	standard	57	-5 = 52	-6 = 51
1 standard	energy saving	50	-4 = 46	-5 = 45
1 energy saving	standard	50	-3 = 47	-4 = 46
1 energy saving	energy saving	43	-3 = 40	-3 = 40

2 Lamp F40T12-

Lamp	Ballast	ANSI	Louver	Lens
2 standard	standard	96	-9 = 87	-10 = 86
2 standard	energy saving	86	-7 = 79	-8 = 78
2 energy saving	standard	82	-6 = 76	-7 = 75
2 energy saving	energy saving	72	-5 = 67	-5 = 67

3 Lamp F40T12-

Lamp	Ballast	ANSI	Louver	Lens
3 standard	1+1 Standard	153	-18 =135	N/A
3 standard	1+1 Energy saving	136	N/A	N/A
3 Energy saving	1+1 Standard	132	N/A	N/A
3 Energy saving	1+1 Energy saving	115	N/A	N/A

4 Lamp F40T12-

Lamp	Ballast	ANSI	Louver	Lens
4 standard	standard	192	-14 =178	-18 =174
4 standard	energy saving	172	-10 =162	-14 =158
4 energy saving	standard	164	-7 =157	-11 =153
4 energy saving	energy saving	144	-6 =138	-8 =136

Single Lamp F30T12-

Lamp	Ballast	ANSI	Louver	Lens
1 standard	standard	46	-2 = 44	-3 = 43
1 energy saving	standard	42	-1 = 41	-2 = 40

2 Lamp F30T12-

Lamp	Ballast	ANSI	Louver	Lens
2 standard	standard	79	-9 = 70	-10 = 69
2 standard	energy saving	74	-7 = 67	-8 = 66
2 energy saving	standard	71	-6 = 65	-7 = 64
2 energy saving	energy saving	66	-5 = 61	-5 = 61

Single Lamp F20T12-

Lamp	Ballast	ANSI	Louver	Lens
1 standard	standard	32	-2 = 30	-3 = 29

Single and Double Lamp F48T12/HO-

Lamp	Ballast	ANSI	Louver	Lens
1 standard	standard	80	-7 = 75	-9 = 79
2 standard	standard	145	N/A	-14 =131

Table 4
Pendant category input wattage

Single Lamp F40T12-

Lamp	Ballast	ANSI	Louver	Lens
1 standard	standard	57	-2 = 55	-3 = 53
1 standard	energy saving	50	-1 = 49	-2 = 48
1 energy saving	standard	50	-1 = 49	-1 = 49
1 energy saving	energy saving	43	-0 = 43	-0 = 43

Two Lamp F40T12-

Lamp	Ballast	ANSI	Louver	Lens
2 standard	standard	96	-6 = 90	-7 = 89
2 standard	energy saving	86	-4 = 82	-5 = 81
2 energy saving	standard	82	-3 = 79	-4 = 78
2 energy saving	energy saving	72	-2 = 70	-2 = 70

Single and Double Lamp F48T12/HO (60w)-

Lamp	Ballast	ANSI	Louver	Lens
1 standard	standard	80	-5 = 75	-7 = 73
2 standard	standard	145	-14= 131	N/A

Single and Double Lamp F72T12/HO (85w)-

Lamp	Ballast	ANSI	Louver	Lens
1 standard	standard	135	-29= 106	N/A
2 standard	standard	220	-10= 210	-14 =206
2 standard	energy saving	200	-7= 193	-11 =189

Single and Double Lamp F96T12/HO (110/95w)-

Lamp	Ballast	ANSI	Louver	Lens
1 standard	standard	135	N/A	N/A
1 energy saving	standard	125	N/A	N/A
2 standard	standard	257	-10 =247	-14 =243
2 standard	energy saving	237	-7 =230	-11 =226
2 energy saving	standard	227	-10 =217	-14 =213
2 energy saving	energy saving	207	-7 =200	-11 =196

Single and double Lamp F15T8-

Lamp	Ballast	ANSI	Louver	Lens
1 standard	low power factor	27	-9 = 18	N/A
2 standard	standard	50	-8 = 42	-9 = 41
2 standard	low power factor	40	-7 = 35	-8 = 32

Single Lamp F8T5, FC6T9, And FC8T9-

Lamp	Ballast	ANSI	Louver	Lens
1 standard F8T5	standard	15	-6 = 9	N/A
1 standard FC6T9	standard	33	-11 = 22	N/A
1 standard FC8T9	standard	29	-5 = 24	N/A

Table 5

Work stations lighting power density statistics, w/m^2 (w/ft^2)

Type of Ambient Lighting System	Mean	Maximum	Minimum	S.D.	N
Direct recessed fluorescent w/ louver	25.1 (2.33)	71.9 (6.68)	4.0 (0.37)	8.1 (0.75)	323
Direct recessed fluorescent w/lens	24.0 (2.23)	69.8 (6.49)	13.7 (1.27)	8.0 (0.74)	162
Direct surface mounted w/egg crate	31.7 (2.95)	58.2 (5.41)	19.9 (1.85)	6.2 (0.58)	45
Indirect fluorescent furniture mounted	31.0 (2.88)	59.2 (5.50)	16.1 (1.50)	7.5 (0.70)	168
Indirect fluorescent pendant mounted	31.0 (2.88)	55.1 (5.12)	11.0 (1.02)	8.7 (0.81)	73
Direct/indirect fluorescent pendant	23.1 (2.15)	38.0 (3.53)	14.2 (1.32)	5.2 (0.48)	67
Indirect metal halide pendant mounted	24.2 (2.25)	33.7 (3.13)	15.0 (1.39)	4.8 (0.45)	37
Other configurations	28.4 (2.64)	79.7 (7.41)	15.0 (1.39)	N/A	37
Type of Supplemental Task Lighting					
Furniture integrated	28.9 (2.69)	79.7 (7.41)	12.6 (1.17)	8.1 (0.75)	383
Desk mounted movable	34.4 (3.20)	59.2 (5.50)	18.7 (1.74)	7.7 (0.72)	126
No supplemental task lighting	21.7 (2.02)	58.2 (5.41)	4.0 (0.37)	6.1 (0.57)	378
Other configurations	28.9 (2.69)	48.6 (4.52)	14.4 (1.34)	N/A	25
For all Work Stations					
As installed	26.7 (2.48)	79.7 (7.41)	4.0 (0.37)	N/A	912
Theoretical Options[1]					
All energy saving lamps and ballasts	23.8 (2.21)	73.3 (6.81)	3.2 (0.30)	N/A	912
Energy saving lamps only	26.3 (2.44)	77.0 (7.16)	3.7 (0.34)	N/A	912
Energy saving ballasts only	27.0 (2.51)	78.2 (7.27)	3.8 (0.35)	N/A	912
No energy saving lamps or ballasts	29.7 (2.76)	82.0 (7.62)	4.2 (0.39)	N/A	912

1 Tabulations are for identical work stations except that the lamps, ballasts, or both were substituted throughout the database with the alternatives noted. These substitutions were not done in the real spaces, but were computed analytically.

Table 6

Lighting power density statistics by building, w/m^2 (w/ft^2)

For all Work Stations	Mean	Maximum	Minimum	S.D.	N
Building #1:					
As installed	25.5 (2.37)	79.7 (7.41)	4.0 (0.37)	10.3 (0.96)	148
All energy saving lamps and ballasts	21.8 (2.03)	73.3 (6.81)	3.2 (0.30)	10.0 (0.93)	
Energy saving lamps only	24.2 (2.24)	77.0 (7.16)	3.7 (0.34)	10.3 (0.96)	
Energy saving ballasts only	25.0 (2.32)	78.2 (7.27)	3.8 (0.35)	10.5 (0.98)	
No energy saving lamps or ballasts	27.2 (2.53)	82.0 (7.62)	4.2 (0.39)	11.0 (1.02)	
Building #2:					
As installed	24.2 (2.25)	42.6 (3.96)	10.7 (0.99)	6.2 (0.58)	150
All energy saving lamps and ballasts	20.6 (1.91)	38.7 (3.60)	8.5 (0.79)	6.3 (0.59)	
Energy saving lamps only	22.9 (2.13)	42.0 (3.90)	9.9 (0.92)	6.6 (0.61)	
Energy saving ballasts only	23.7 (2.20)	43.3 (4.03)	9.9 (0.92)	6.7 (0.62)	
No energy saving lamps or ballasts	26.0 (2.42)	46.6 (4.33)	11.3 (1.05)	7.0 (0.65)	
Building #3:					
As installed	29.3 (2.72)	56.9 (5.29)	11.0 (1.02)	8.6 (0.80)	150
All energy saving lamps and ballasts	27.5 (2.56)	54.8 (5.09)	10.0 (0.93)	8.2 (0.76)	
Energy saving lamps only	30.8 (2.86)	58.6 (5.45)	11.4 (1.06)	8.7 (0.81)	
Energy saving ballasts only	31.4 (2.92)	60.6 (5.63)	11.9 (1.11)	9.0 (0.84)	
No energy saving lamps or ballasts	34.9 (3.24)	64.7 (6.01)	13.3 (1.24)	9.7 (0.90)	
Building #4:					
As installed	24.5 (2.28)	69.8 (6.49)	15.0 (1.39)	8.6 (0.80)	50
All energy saving lamps and ballasts	24.7 (2.30)	68.2 (6.34)	15.0 (1.39)	8.5 (0.79)	
Energy saving lamps only	24.9 (2.31)	69.8 (6.49)	15.0 (1.39)	8.7 (0.81)	
Energy saving ballasts only	24.9 (2.31)	70.4 (6.54)	15.0 (1.39)	8.8 (0.82)	
No energy saving lamps or ballasts	25.0 (2.32)	72.0 (6.69)	15.0 (1.39)	9.1 (0.85)	
Building #5:					
As installed	23.8 (2.21)	51.2 (4.76)	13.7 (1.27)	7.3 (0.68)	46
All energy saving lamps and ballasts	20.8 (1.93)	51.2 (4.76)	11.1 (1.03)	8.0 (0.74)	
Energy saving lamps only	22.8 (2.12)	51.2 (4.76)	12.6 (1.17)	7.6 (0.71)	
Energy saving ballasts only	23.9 (2.19)	51.2 (4.76)	13.2 (1.23)	7.4 (0.69)	
No energy saving lamps or ballasts	25.7 (2.39)	51.2 (4.76)	14.7 (1.37)	7.2 (0.67)	

Table 6 (continued)

For all Work Stations	Mean	Maximum	Minimum	S.D.	N
Building #6:					
As installed	34.2 (3.18)	43.7 (4.06)	28.3 (2.63)	4.3 (0.40)	49
All energy saving lamps and ballasts	30.7 (2.85)	40.7 (3.78)	25.3 (2.35)	4.5 (0.42)	
Energy saving lamps only	33.0 (3.07)	42.8 (3.98)	27.5 (2.56)	4.5 (0.42)	
Energy saving ballasts only	33.7 (3.13)	43.3 (4.02)	27.9 (2.59)	4.4 (0.41)	
No energy saving lamps or ballasts	36.0 (3.35)	45.4 (4.22)	30.1 (2.80)	4.4 (0.41)	
Building #7:					
As installed	31.4 (2.92)	58.3 (5.42)	19.9 (1.85)	6.3 (0.59)	47
All energy saving lamps and ballasts	27.0 (2.51)	48.4 (4.50)	17.0 (1.58)	6.2 (0.58)	
Energy saving lamps only	30.7 (2.85)	55.2 (5.13)	19.4 (1.80)	6.2 (0.58)	
Energy saving ballasts only	32.1 (2.98)	57.9 (5.38)	20.3 (1.89)	6.5 (0.60)	
No energy saving lamps or ballasts	35.6 (3.31)	64.6 (6.00)	22.7 (2.11)	7.0 (0.65)	
Building #8:					
As installed	31.4 (2.92)	54.3 (5.05)	18.5 (1.72)	8.7 (0.81)	27
All energy saving lamps and ballasts	26.0 (2.42)	44.2 (4.11)	15.3 (1.42)	7.4 (0.69)	
Energy saving lamps only	29.8 (2.75)	50.5 (4.69)	17.4 (1.62)	8.3 (0.77)	
Energy saving ballasts only	31.0 (2.88)	52.8 (4.91)	18.3 (1.70)	8.6 (0.80)	
No energy saving lamps or ballasts	35.1 (3.26)	59.8 (5.56)	20.7 (1.92)	9.7 (0.90)	
Building #9:					
As installed	22.3 (2.07)	48.6 (4.52)	14.6 (1.36)	7.1 (0.66)	50
All energy saving lamps and ballasts	18.6 (1.73)	44.9 (4.17)	11.8 (1.10)	7.1 (0.66)	
Energy saving lamps only	20.8 (1.93)	47.1 (4.38)	13.6 (1.26)	7.1 (0.66)	
Energy saving ballasts only	21.6 (2.01)	48.0 (4.46)	14.2 (1.32)	7.1 (0.66)	
No energy saving lamps or ballasts	23.9 (2.22)	50.1 (4.66)	15.8 (1.47)	7.1 (0.66)	
Building #10:					
As installed	34.2 (3.18)	59.2 (5.50)	19.4 (1.80)	8.7 (0.81)	47
All energy saving lamps and ballasts	30.3 (2.82)	55.4 (5.15)	16.4 (1.52)	9.0 (0.84)	
Energy saving lamps only	33.1 (3.08)	58.0 (5.39)	18.3 (1.70)	8.9 (0.83)	
Energy saving ballasts only	33.9 (3.15)	58.7 (5.46)	19.2 (1.78)	8.9 (0.83)	
No energy saving lamps or ballasts	36.9 (3.43)	61.5 (5.72)	21.3 (1.98)	8.8 (0.82)	

Table 6 (continued)

For all Work Stations	Mean	Maximum	Minimum	S.D.	N
Building #11:					
As installed	21.2 (1.97)	28.2 (2.62)	21.0 (1.95)	7.3 (0.68)	50
All energy saving lamps and ballasts	18.4 (1.71)	25.3 (2.35)	18.1 (1.68)	1.4 (0.13)	
Energy saving lamps only	20.4 (1.90)	27.5 (2.56)	20.0 (1.86)	1.4 (0.13)	
Energy saving ballasts only	21.2 (1.97)	28.4 (2.64)	20.9 (1.94)	1.4 (0.13)	
No energy saving lamps or ballasts	23.2 (2.16)	30.1 (2.80)	22.8 (2.12)	1.4 (0.13)	
Building #12:					
As installed	24.4 (2.27)	46.6 (4.33)	18.9 (1.76)	5.4 (0.50)	49
All energy saving lamps and ballasts	20.3 (1.89)	42.6 (3.96)	15.4 (1.43)	5.3 (0.49)	
Energy saving lamps only	22.9 (2.13)	45.8 (4.26)	17.5 (1.63)	5.5 (0.51)	
Energy saving ballasts only	23.8 (2.21)	46.6 (4.33)	18.3 (1.70)	5.5 (0.51)	
No energy saving lamps or ballasts	26.4 (2.45)	49.8 (4.63)	20.4 (1.90)	5.8 (0.54)	
Building #13:					
As installed	25.4 (2.36)[1]	48.6 (4.52)	15.8 (1.47)	7.3 (0.68)	49
All energy saving lamps and ballasts	26.5 (2.46)	49.1 (4.56)	16.4 (1.52)	7.5 (0.70)	
Energy saving lamps only	30.2 (2.81)	53.6 (4.98)	18.7 (1.74)	8.0 (0.74)	
Energy saving ballasts only	30.8 (2.86)	54.0 (5.02)	19.3 (1.79)	8.0 (0.74)	
No energy saving lamps or ballasts	34.4 (3.20)	58.6 (5.45)	21.7 (2.02)	8.5 (0.79)	

1 The lighting power densities are shown slightly better than the all energy saving lamps and ballasts scenario due to the luminaire thermal correction factor that is not a part of the theoretical power numbers (with only a few exceptions, the lighting system installed had energy saving lamps and ballasts throughout).

Table 7
Building Descriptions

Building #	General building description	Principal lighting system[1]	Mean LPD, w/m^2 (w/ft^2)
1	Mid-rise corporate offices	1x4 direct recessed fluorescent	25.5 (2.37)[2]
2	Low-rise corporate offices	1x4 direct recessed fluorescent	24.2 (2.25)
3	High-rise corporate offices	Indirect fluorescent furniture mounted	29.3 (2.72)
4	Small regional center	Indirect pendant mounted metal halide	24.5 (2.28)
5	Mid-rise corporate offices	2x4 direct recessed fluorescent	23.8 (2.21)
6	Low-rise corporate offices	Linear direct fluorescent w/ skylights	34.2 (3.18)
7	High-rise federal offices	1x4 direct fluorescent surface mounted	31.4 (2.92)
8	High-rise federal offices	2x4 direct recessed fluorescent	31.4 (2.92)
9	Mid-rise university offices	2x4 direct recessed ceiling	22.3 (2.07)
10	High-rise corporate offices	Indirect furniture mounted	34.2 (3.18)
11	Mid-rise state government offices	Linear direct recessed ceiling	21.2 (1.97)
12	High-rise corporate offices	1x4 direct ceiling	24.4 (2.27)
13	Low-rise manufacturing offices	2x4 direct recessed ceiling	25.4 (2.36)

1 See Appendix A for detailed description of luminaire characteristics (first digit in luminaire code in Appendix A is building number).

2 The number shown is a mean lighting power density for the work stations sampled in each building, and does not reflect the overall lighting power density of the building as a whole.

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2. IES Energy Management Committee, IES Recommended Procedure for Lighting Power Limit Determination, IES LEM-1/1982, Illuminating Engineering Society of North America, New York, 1983.

3. Gillette, G., Brown, M., Occupant Evaluation of Commercial Office Lighting: Volume I, Methodology and Bibliography, ORNL/TM-10264/V1, Oak Ridge National Laboratory, Oak Ridge, TN, November, 1986.

4. Gillette, G., Occupant Evaluation of Commercial Office Lighting: Volume III, Data Archive and Database Management System, ORNL/TM-10264/V3, Oak Ridge National Laboratory, Oak Ridge, TN, August, 1987.

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APPENDIX A: LUMINAIRE DESCRIPTIVE TABLE

Luminaire ID	Local Code	System Type	Fixture Shape	Mounting	Control	Light Source	Lamp Type	Nominal Lamp watts	Lamps/ Fixture	Ballast Category	Estimated Wattage	Notes
1010	"P"type	DRF-LV	1x4	Recessed ceiling	Parabolic Louver	WWF	F40T12/RS/WW	40	1	STD Tandem ballast	46	Ballast shared by two units
1020	"K"type	DIF-P	Linear	Pendant	Baffle	WWF	F40T12/RS/WW	40	1	STD Tandem ballast	45	Ballast shared by two units
1021	"K"type	DIF-P	Linear	Pendant	Baffle	WWF	F30T12/RS/WW	30	1	STD Ballast	45	
1030	"LX"type	DIF-WMT	Linear	Surface Wall Wash	None	WWF	F40T12/RS/WW	40	1	STD Tandem ballast	46	Ballast shared by two units
1035		IN-REC		Recessed Cans	None	IN	A21/IF	150	1	None	150	
1040		FI-task		Under Shelf	Prismatic Lens	CWF	F20T12/RS/CW	20	1	Trigger start	29	
1050		FI-task		Under Shelf	Prismatic Lens	CWF	F30T12/RS/CW	30	1	STD Ballast	43	
1051		FI-task		Under Shelf	Prismatic Lens	WWF	F30T12/RS/WW	30	1	STD Ballast	43	
1060		FI-task		Under Shelf	Prismatic Lens	CWF	F40T12/RS/WW	40	1	STD Ballast	51	
1070		FM-task		Desk Unit	Lamp Shade	IN	A19/IF	60	1	None	60	
1071		FM-task		Desk Unit	Lamp Shade	IN	A19/IF	100	1	None	100	
1072		FM-task		Desk Unit	Lamp Shade	IN	A21(50/100/150)	150	1	None	150	
1073		FM-task		Desk Unit	Reflector	IN	A19/IF	60	1	None	60	
1080		FM-task		Drafting Unit	Reflector	CWF	F15T8/CW	15	2	Ballast(low PF)	35	
1090		FM-task		Desk Unit	Reflector	CWF	F15T8/CW	15	1	Ballast(low PF)	18	
2010	"A"type	DIF-P	Linear	Pendant	Parabolic Louver	WWF	F96T12/HO/WW	110	2	STD Ballast	247	
2020	"B"type	DRF-LV	1x4	Recessed Ceiling	Parabolic Louver	WWF	F40T12/RS/WW	40	2	STD Ballast	89	
2021	"I"type	DRF-LV	1x4	Recessed Ceiling	Parabolic Louver	WWF	F40T12/RS/WW	40	1	STD Ballast	54	
2022	"L"type	DRF-LV	1x4	Recessed Ceiling	Parabolic Louver	SP	F40T12/RS/SP	40	1	STD Ballast	54	
2023	"I"type	DRF-LV	1x4	Recessed Ceiling	Parabolic Louver	WWF	F40T12/RS/WW	34	1	STD Ballast	49	
2030	"C"type	IF-WW	Cove	Ceiling Wall Wash	Baffle	WWF	F40T12/RS/WW	40	1	STD Ballast	44.5	Ballast shared by two units
2031	"J"type	IF-WW	Cove	Ceiling Wall Wash	Baffle	WWF	F30T12/RS/WW	30	1	STD Ballast	44	
2032	"M"type	IF-WW	Cove	Ceiling Wall Wash	Baffle	SP	F40T12/RS/SP	40	1	STD Ballast	54	
2033	"C"type	IF-WW	Cove	Ceiling Wall Wash	Baffle	WWF	F40T12/RS/WW	40	1	STD Ballast	54	
2040	"D"type	FI-task		Under Shelf	Prismatic lens	WWF	F20T12/WW	20	1	Trigger start	29	
2050	"E"type	FI-task		Under Shelf	Prismatic lens	WWF	F40T12/RS/WW	40	1	STD Ballast	51	
2060	"G"type	FM-task		Drafting Unit	Reflector	CWF/IN	FC6T9/CW & A19	20 & 60	2	Ballast(low PF)	82	
2070	"K"type	FM-task		Drafting Unit	Reflector	CWF	F15T8/CW	15	2	Ballast(low PF)	35	
2080		IN-REC		Recessed Cans	None	IN	150PAR	150	1	None	150	
2090		FM-task		Desk Unit	Reflector	IN	A19/IF	60	1	None	60	
3010	"A"type.	FI-task		Under Shelf	Prismatic Lens	CWF	F40T12/RS/CW/WM	34	1	STD Ballast	46	
3011	"F"type	DF-WMT		Wall Panel	None	CWF	F30T12/RS/CW	30	1	STD Ballast	43	
3012	"C"type	FI-task		Under Shelf	Prismatic Lens	CWF	F20T12/RS/CW	20	1	Trigger start	29	
3020	"I"type	IF-FM		Furniture	Prismatic Lens	WWF	F40T12/RS/WW/WM	34	2	STD Ballast	77	
3021	"I"type	IF-FM		Furniture	Prismatic Lens	WWF	F40T12/RS/WW/WM	34	4	STD Ballast	155	
3030	"B"type	HID-FS		Free Standing Kiosk	Plastic Cover	MH	M250/C/BD	250	1	STD Ballast	295	
3040	"D"type	DRF-LV	2x2	Recessed ceiling	Paralouver (3"cell)	CWF	F40W-U6/CW	40	2	STD Ballast	88	
3050	"G"type	DIF-WMT		Wall Panel	None	WWF	F40T12/RS/WW	40	1	STD Ballast	55	
3060	"H"type	IF-PM		Pendant	None	WWF	F40T12/RS/WW/WM	34	2	STD Ballast	79	
3061	"H'"type	IF-PM		Pendant	None	WWF	F40T12/RS/WW/WM	40	2	STD Ballast	90	
3070	"J"type	IF-PM		Pendant	None	WWF	F72T12/WW/HO	85	2	STD Ballast	210	
3071	"J"type	IF-PM		Pendant	None	WWF	F72T12/WW/HO	85	1	STD Ballast	106	
3080	"T"type	IN-REC		Recessed Cans	None	IN	150R40	150	1	None	150	
3090	"X"type	DF-SM	1x4	Surface Ceiling	Prismatic Lens	WWF	F40T12/RS/WW	40	2	STD Ballast	86	
3100	"L"type	FM-task		Drafting Unit	Reflector	CWF/IN	FC6T9/CW & A19	20 & 60	2	Ballast(low PF)	82	
3101	"L"type	FM-task		Drafting Unit	Reflector	CWF/IN	FC6T9/CW & A19	20 & 52	2	Ballast(low PF)	74	
3102	"L"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	60	1	None	60	
3103		FM-task		Desk Unit	Reflector	CWF	F15T8/CW	15	1	Ballast(low PF)	18	
3104		FM-task		Desk Unit	Shade	IN	A19/IF	60	1	None	60	Lamp assumed at 60w
3110	CF8	COLDCATH	14'dia	Recessed Ceiling	None	CC	96T8LP	556	11	5 2-lamp;1 1-lmp blst	556	93 inch Cold Cathode (@120ma)
3120	CF11	DIF-P	Linear	Cove	None	WWF	F96T12/WW/HO	110	1	STD Ballast	127	
3121	CF11A	DIF-P	Linear	Cove	None	WWF	F48T12/WW/HO	60	1	STD Ballast	75	
3130	CF25B	DRF-WW		Wall Wash	None	WWF	F40T12/RS/WW	40	2	STD Ballast	89	
3131	"S"type	DRF-WW		Wall Wash	Egg Crate	WWF	F40T12/RS/WW/WM	34	1	STD Ballast	49	
3140	"O"type	TRAC-IN		Track Ceiling	Reflector	IN	A90/IF	90	1	None	90	

Luminaire ID	Local Code	System Type	Fixture Shape	Mounting	Control	Light Source	Lamp Type	Nominal Lamp watts	Lamps/ Fixture	Ballast Category	Estimated Wattage	Notes
3150	CF29	DRF-LN	1x4	Recessed Ceiling	Prismatic Lens	WWF	F40T12/RS/WW/WM	34	2	STD Ballast	77	
4010	"A"type	HID-P	Circular	Pendant	None	MH	MS250/3k/hor	250	1	STD Ballast	295	
4011	"A"type	HID-P	Circular	Pendant	None	MH	MS175/3k/hor	175	1	STD Ballast	210	
4020	"B"type	REC-IN		Recessed Ceiling	None	IN	R-20 Flood	50	1	None	50	
4030	"C"type	HID-P		Free Standing Kiosk	Plastic Cover	MH	MS400/C/hor	400	1	STD Ballast	455	
4040	"D"type	DRF-LN	1x4	Recessed Ceiling	Prismatic Lens	WWF	F40T12/RS/WW	40	2	STD Ballast	88	
4050	"a"type	FI-task		Under Shelf	Prismatic Lens	WWF	F20T12/RS/WW	20	1	Trigger start	29	
4051	"a"type	FI-task		Under Shelf	Prismatic Lens	CWF	F20T12/RS/CW	20	1	Trigger start	29	
4060	"b"type	FM-task		Drafting Unit	Reflector	CWF	F8T5/CW	8	1	Ballast(low PF)	9	
5010	"A"type	HID-FM	Box	Shelf Box Unit	None	MH	MS400/C/hor	400	1	STD Ballast	455	
5020	"B"type	DRF-LN	2x4	Recessed Ceiling	Prismatic Lens	CWF	F40T12/RS/CW	40	2	STD Ballast	89	
5021	"B"type	DRF-LN	2x4	Recessed Ceiling	Prismatic Lens	CWF	F40T12/RS/CW	40	4	STD Ballast	176	
5030	"C"type	TRAC-IN		Track Ceiling	Reflector	IN	R40 Spot	120	1	None	120	
5040	"D"type	REC-IN		Recessed Ceiling	None	IN	R40 Flood	150	1	None	150	
5050	"a"type	FM-task		Desk Unit	Lamp Shade	IN	PS25	150	1	None	150	
5060	"b"type	FI-task		Under Shelf	None	CWF	F40T12/RS/CW	40	1	STD Ballast	52	
5061	"b"type	FI-task		Under Shelf	None	CWF	F40T12/RS/CW/WM	34	1	ES Ballast	40	
5070	"c"type	FM-task		Drafting Unit	Reflector	IN/CWF	FC8T9/CW & A19	22 & 60	2	Ballast(low PF)	84	
5071	"c"type	FM-task		Drafting Unit	Reflector	IN/CWF	FC8T9/CW & A19	22 & 25	2	Ballast(low PF)	49	
5072	"c"type	FM-task		Drafting Unit	Reflector	IN/CWF	A19/IF	60	1	None	60	
5073	"c"type	FM-task		Drafting Unit	Reflector	IN/CWF	A19/IF	75	1	None	75	
5080	"d"type	FS-task		Free Standing Floor	Reflector	IN	A19/IF	40	2	None	80	
5090	"e"type	FS-task		Desk Unit	None	CWF	F15T8/CW	15	2	Ballast(low PF)	35	
5091	"e"type	FS-task		Desk Unit	None	CWF	F15T8/CW	15	1	Ballast(low PF)	18	
6010	"A"type	DIF	Linear	Pendant in Skylight	Plastic Lens	WF	F48T12/W/HO	60	2	STD Ballast	131	
6011	"A"type	DIF	Linear	Pendant in Skylight	Plastic Lens	WF	F72T12/W/HO	85	1	STD Ballast	106	
6012	"A"type	DIF	Linear	Pendant in Skylight	Plastic Lens	WF	F72T12/W/HO	85	2	STD Ballast	206	
6013	"A"type	DIF	Linear	Pendant in Skylight	Plastic Lens	WF	F96T12/W/HO	110	1	STD Ballast	128	
6014	"A"type	DIF	Linear	Pendant in Skylight	Plastic Lens	WF	F96T12/W/HO	110	2	STD Ballast	243	
6020	"B"type	HID-FS		Free Standing Kiosk	None	MH	MS400/C/hor	400	1	STD Ballast	455	
6030	"a"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	52	1	None	52	
6031	"a"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	60	1	None	60	
6032	"a"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	25	1	None	25	
6040	"b"type	FM-task		Dssk Unit	Reflector	IN	60T10/F	60	1	None	60	
7010	"A"type	DF-SM	1x4	Ceiling Surface	Egg Crate	CWF	F40T12/RS/CW/WM	34	2	STD Ballast	76	
7011	"A"type	DF-SM	1x4	Ceiling Surface	Egg Crate	CWF	F40T12/RS/CW	34 & 40	2	STD Ballast	81	
7012	"A"type	DF-SM	1x4	Ceiling Surface	Egg Crate	CWF	F40T12/RS/CW	40	2	STD Ballast	87	
7013	"A"type	DF-SM	1x4	Ceiling Surface	Egg Crate	CWF	F40T12/RS/CW	40	3	STD Ballast	135	
7020	"B"type	DRF-LN	1x4	Recessed Ceiling	Prismatic Lens	CWF	F40T12/RS/CW	40	2	STD Ballast	88	
7030	"a"type	FM-task		Desk Unit	Lamp Shade	IN	A21/IF	100	1	None	100	
7031	"a"type	FM-task		Desk Unit	Lamp Shade	IN	A21/IF	150	1	None	150	
7040	"b"type	FM-task		Desk Unit	Reflector	CWF	F15T8/CW	15	1	Ballast(low PF)	18	
7041	"b"type	FM-task		Desk Unit	Reflector	CWF	F15T8/CW	15	2	Ballast(low PF)	35	
7050	"c"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	60	1	None	60	
7060	"d"type	FI-task		Under Shelf Unit	Prismatic Lens	CWF	F40T12/RS/CW	40	1	STD Ballast	51	
8010	"A"type	DRF-LN	2x4	Recessed Ceiling	Prismatic Lens	WWF	F40T12/RS/WW	40	4	STD Ballast	176	
8011	"A"type	DRF-LN	2x4	Recessed Ceiling	Prismatic Lens	WWF	F40T12/RS/WW	40	2	STD Ballast	89	
8012	"A"type	DRF-LN	2x4	Recessed Ceiling	Prismatic Lens	WWF	F40T12/RS/WW/WM	34 & 40	1 & 3	STD Ballast	171	
8020	"B"type	DRF-LV	2x4	Recessed Ceiling	Parabolic Louver	WWF	F40T12/RS/WW	40	4	STD Ballast	180	
8030	"C"type	DRF-LN	2x2	Recessed Ceiling	Prismatic Lens	WWF	F40-U6/RS/WW	40	2	STD Ballast	87	
8040	"D"type	DRF-LN	1x4	Recessed Ceiling	Prismatic Lens	WWF	F40T12/RS/WW	40	2	STD Ballast	88	
8050	"a"type	FM-task		Desk Unit	None	IN	A19/IF	60	1	None	60	
8060	"b"type	FM-task		Desk Unit	Reflector	CWF	F15T8/CW	15	1	Ballast(low PF)	18	
8061	"b"type	FM-task		Desk Unit	Reflector	CWF	F15T8/CW	15	2	Ballast(low PF)	35	
8070	"c"type	FM-task		Drafting Unit	Reflector	CWF	FC6T9/CW & A21	20 & 100	2	Ballast(low PF)	122	

Luminaire ID	Local Code	System Type	Fixture Shape	Mounting	Control	Light Source	Lamp Type	Nominal Lamp watts	Lamps/ Fixture	Ballast Category	Estimated Wattage	Notes
9010	"A"type	DRF-LN	2x4	Recessed Ceiling	Prismatic Lens	CWF	F40T12/RS/CW	40	2	STD Ballast	89	
9011	"A"type	DRF-LN	2x4	Recessed Ceiling	Prismatic Lens	CWF	F40T12/RS/WW	40	2	STD Ballast	89	
9020	"a"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	75	1	None	75	
9021	"a"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	95	1	None	95	
9022	"a"type	FM-task		Drafting Unit	Reflector	IN	A21/IF	100	1	None	100	
9030	"b"type	FM-task		Desk Unit	Reflector	CWF	F15T8/CW	15	2	Ballast(low PF)	35	
9040	"c"type	FM-task		Desk Unit	Reflector	IN	S11 hi intensity	40	1	None	40	High intensity unit
9050	"d"type	FM-task		Desk Unit	Reflector	IN	A19/IF	75	1	None	75	
9051	"e"type	FM-task		Desk Unit	Lamp Shade	IN	A21/IF	200	1	None	200	
9052	"e"type	FM-task		Desk Unit	Lamp Shade	IN	A21/IF	100	1	None	100	
9053	"e"type	FM-task		Desk Unit	Lamp Shade	IN	A21/IF	75 & 100	2	None	175	
10010	"A"type	IF-FM		Above Shelf	Prismatic Lens	WWF	F40T12/RS/WW	40	4	STD Ballast	174	
10020	"B"type	IF-FS		Floor Torchere	None	IN	A21(50/100/150)	150	1	None	150	
10030	"C"type	IF-WMT	Linear	Ceiling Wash	Cove	WWF	F40T12/RS/WW	40	1	STD Ballast	54	
10031	"C"type	IF-WMT	Linear	Ceiling Wash	Cove	WWF	F40T12/RS/WW	40	2	STD Ballast	89	
10040	"C"type	IF-WMT	Linear	Ceiling Wash	Cove	WWF	F30T12/RS/WW	30	1	STD Ballast	44	
10041	"C"type	IF-WMT	Linear	Ceiling Wash	Cove	WWF	F20T12/WW	20	1	Trigger start	29	Low power factor assumed
10042	"C"type	IF-WMT	Linear	Ceiling Wash	Cove	WWF	F20T12/WW	20	2	Trigger start	42	Low power factor assumed
10050	"D"type	REC-IN		Recessed Cans	Cove	IN	R40 Spot	150	1	None	150	
10060	"a"type	FI-task		Under Shelf Unit	Prismatic Lens	CWF	F40T12/RS/CW	40	1	STD Ballast	51	
10061	"a"type	FI-task		Under Shelf Unit	Prismatic Lens	WWF	F40T12/RS/WW	40	1	STD Ballast	51	
10062	"a"type	DF-WMT		Wall Panel	Prismatic Lens	WWF	F40T12/RS/WW	40	1	STD Ballast	51	
10070	"b"type	FM-task		Desk Unit	Lamp Shade	IN	A21(50/100/150)	150	1	None	150	
10071	"b"type	FM-task		Desk Unit	Lamp Shade	IN	A21(50/200/250)	250	1	None	250	
10080	"c"type	FM-task		Drafting Unit	Reflector	CWF/IN	FC8T9/RS/CW &A19	22 & 60	2	Ballast(low PF)	84	Low power factor
10081	"c"type	FM-task		Drafting Unit	Reflector	CWF/IN	FC8T9/RS/CW &A19	22 & 67	2	Ballast(low PF)	91	Low power factor
10090	"d"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	67	1	None	67	
10091	"d"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	52	1	None	52	
10092	"d"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	60	1	None	60	
11010	"A"type	DRF-LN	Linear	Recessed Ceiling	Prismatic Lens	CWF	F40T12/RS/CW	40	2	STD Ballast	88	
11011	"A"type	DRF-LN	Linear	Recessed Ceiling	Prismatic Lens	CWF	F40T12/RS/CW	40	1	STD Ballast	53	
11020	"A"type	DRF-LN	Linear	Recessed Ceiling	Prismatic Lens	CWF	F20T12/RS/CW	20	1	Trigger start	29	
11030	"a"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	40	1	None	40	
11040	"b"type	FM-task		Desk Unit	Lamp Shade	IN	A19(30/70/100)	100	1	None	100	
11050	"c"type	FM-task		Desk Unit	None	SWF	F15T12/SW	15	1	Ballast(low PF)	18	Low power factor
11051	"c"type	FM-task		Desk Unit	None	SWF	F15T12/SW	15	2	Ballast(low PF)	35	Low power factor
12010	"A"type	DRF-LV	9"x4	Recessed Ceiling	Parabolic Louver	WWF	F40T12/RS/WW	40	1	STD Tandem ballast	44.5	Ballast shared by two units
12011	"A"type	DRF-LV	9"x4	Recessed Ceiling	Parabolic Louver	WWF	F40T12/RS/WW	40	1	STD Ballast	54	
12020	"A"type	DRF-LV	9"x2	Recessed Ceiling	Parabolic Louver	WWF	F20T12/RS/WW	20	1	Trigger start	29	Low power factor
12030	"a"type	FI-task		Under Shelf Unit	Prismatic Lens	CWF	F40T12/RS/CW	40	1	STD Ballast	51	
12031	"a"type	FI-task		Under Shelf Unit	Prismatic Lens	WWF	F40T12/RS/WW	40	1	STD Ballast	51	
12040	"b"type	FM-task		Drafting Unit	Reflector	IN	R-20	50	1	None	50	
12041	"b"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	60	1	None	60	
12050	"c"type	FM-task		Drafting Unit	Reflector	CWF/IN	FC8T9/CW & A19	22 & 60	2	Ballast(low PF)	84	
12051	"c"type	FM-task		Drafting Unit	Reflector	CWF/IN	FC8T9/CW & A19	22 & 75	2	Ballast(low PF)	99	
12052	"c"type	FM-task		Drafting Unit	Reflector	CWF/IN	FC8T9/CW & A19	22 & 100	2	Ballast(low PF)	124	
12060		FM-task		Desk Unit	Lamp Shade	IN	A19(30/70/100)	100	1	None	100	
13010	"A"type	DRF-LV	2x4	Recessed Ceiling	Low Brightness Lvr	WWF	F40T12/RS/WW/WM	34	3	2-ES Ballast	112	
13011	"A"type	DRF-LV	2x4	Recessed Ceiling	Low Brightness Lvr	WWF	F40T12/RS/WW/WM	34	2	ES Ballast	70	
13012	"A"type	DRF-LV	2x4	Recessed Ceiling	Low Brightness Lvr	WWF	F40T12/RS/WW/WM	34	1	ES Ballast	42	
13020	"B"type	DRF-LN	2x4	Recessed Ceiling	Prismatic Lens	WWF	F40T12/RS/WW/WM	34	3	2-ES Ballast	111	
13030	"a"type	FI-task		Under Shelf Unit	None	WWF	F40T12/RS/WW/WM	34	1	ES Ballast	40	
13040	"b"type	FM-task		Drafting Unit	Reflector	IN	A21/IF	100	1	None	100	
13041	"e"type	FM-task		Drafting Unit	Reflector	IN	A19/IF	75	1	None	75	
13050	"c"type	FM-task		Desk Unit	Reflector	CWF	F15T8/CW	15	1	Ballast(low PF)	22	2-LPF ballast;1 lamp out

Luminaire ID	Local Code	System Type	Fixture Shape	Mounting	Control	Light Source	Lamp Type	Nominal Lamp watts	Lamps/ Fixture	Ballast Category	Estimated Wattage	Notes
13060	"d"type	FM-task		Desk Unit	Lamp Shade	IN	A21/IF	100	1	None	100	
13070	"f"type	FM-task		Drafting Unit	Reflector	CWF	F15T8/CW	15	2	Ballast(low PF)	35	
13080	"g"type	FM-task		Desk Unit	Reflector	IN	G11 hi intensity	40	1	None	40	
13090	"h"type	FM-task		Drafting Unit	Reflector	CWF	FC8T9/CW	22	1	Ballast(low PF)	24	

APPENDIX B: LIGHTING POWER DENSITIES BY WORK STATION

Notes:

WS - Work station identifier [3]
BLDG - Building identifer [3]
LTGSYS - Lighting system code
1 = direct recessed fluorescent w/ louvers
2 = direct recessed fluorescent w/ lenses
3 = direct surface mounted fluorescent w/ egg crates
4 = indirect fluorescent furniture mounted
5 = indirect fluorescent pendant mounted
6 = direct/indirect fluorescent pendant mounted
7 = metal halide indirect pendant mounted
0 = other or hybrid

LPD - Installed lighting power density, in w/m^2 (w/ft^2)

LPDES - Alternate LPD with all energy saving lamps and ballasts in w/m^2 (w/ft^2)

LPDSTD - Alternate LPD with all standard lamps and ballasts in w/m^2 (w/ft^2)

LPDELSB - Alternate LPD with energy saving lamps and standard ballasts in w/m^2 (w/ft^2)

LPDEBSL - Alternate LPD with energy saving ballasts and standard lamps in w/m^2 (w/ft^2)

The following listing of individual lighting power densities is presented in ascending order of estimated installed LPD, with the associated alternate (theoretical) power densities also listed. The alternate columns LPDES, LPDSTD, LPDELSB, and LPDEBSL are based on ANSI C82.2 input wattages alone, without the thermal factors applied; consequently, they are not directly compared to the installed LPD numbers. Also, there was no attempt made to evaluate the potential differences in measured light output attributable to the four alternate scenarios.

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1010303	1	1	4.02	3.18	4.24	3.62	3.80	0.37	0.30	0.39	0.34	0.35
1010411	1	1	9.45	7.45	9.93	8.48	8.90	0.88	0.69	0.92	0.79	0.83
1010410	1	1	9.45	7.45	9.93	8.48	8.90	0.88	0.69	0.92	0.79	0.83
1022075	2	1	10.66	8.49	11.25	9.87	9.87	0.99	0.79	1.05	0.92	0.92
1030206	3	5	10.97	10.00	13.33	11.38	11.94	1.02	0.93	1.24	1.06	1.11
1010412	1	1	10.98	8.60	11.46	9.79	10.27	1.02	0.80	1.07	0.91	0.95
1031005	3	5	12.63	12.16	14.97	13.33	13.80	1.17	1.13	1.39	1.24	1.28
1010508	1	1	12.85	10.16	13.55	11.57	12.14	1.19	0.94	1.26	1.08	1.13
1010506	1	1	12.85	10.16	13.55	11.57	12.14	1.19	0.94	1.26	1.08	1.13
1031102	3	5	13.20	12.40	15.91	13.93	14.38	1.23	1.15	1.48	1.29	1.34
1010227	1	1	13.49	10.62	14.16	12.09	12.68	1.25	0.99	1.32	1.12	1.18
1010229	1	1	13.49	10.62	14.16	12.09	12.68	1.25	0.99	1.32	1.12	1.18
1010228	1	1	13.49	10.62	14.16	12.09	12.68	1.25	0.99	1.32	1.12	1.18
2020106	5	2	13.68	11.07	14.76	12.60	13.22	1.27	1.03	1.37	1.17	1.23
1030303	3	5	13.93	13.09	16.80	14.71	15.18	1.29	1.22	1.56	1.37	1.41
1030604	3	5	14.16	13.31	17.08	14.95	15.44	1.32	1.24	1.59	1.39	1.44
1010223	1	1	14.19	11.22	14.96	12.77	13.40	1.32	1.04	1.39	1.19	1.25
1010332	1	1	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010322	1	6	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010335	1	1	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010326	1	1	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010327	1	1	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010321	1	1	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010330	1	1	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010331	1	1	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010325	1	1	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010329	1	1	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010320	1	6	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010324	1	1	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010333	1	1	14.19	11.24	14.98	12.80	13.42	1.32	1.04	1.39	1.19	1.25
1010210	1	1	14.36	11.34	15.12	12.91	13.54	1.33	1.05	1.41	1.20	1.26
1010212	1	1	14.36	11.34	15.12	12.91	13.54	1.33	1.05	1.41	1.20	1.26
1010306	1	1	14.45	11.78	15.68	13.53	13.94	1.34	1.10	1.46	1.26	1.30
2060314	9	2	14.66	11.86	15.81	13.50	14.16	1.36	1.10	1.47	1.26	1.32
1010201	1	1	14.71	11.60	15.47	13.21	13.86	1.37	1.08	1.44	1.23	1.29

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1030301	3	5	14.92	14.03	18.00	15.76	16.27	1.39	1.30	1.67	1.46	1.51
1010718	1	1	14.97	11.84	15.79	13.49	14.15	1.39	1.10	1.47	1.25	1.31
1010723	1	1	14.97	11.84	15.79	13.49	14.15	1.39	1.10	1.47	1.25	1.31
1010713	1	1	14.97	11.84	15.79	13.49	14.15	1.39	1.10	1.47	1.25	1.31
2010110	4	7	14.99	14.99	14.99	14.99	14.99	1.39	1.39	1.39	1.39	1.39
2010108	4	7	14.99	14.99	14.99	14.99	14.99	1.39	1.39	1.39	1.39	1.39
2010109	4	0	14.99	14.99	14.99	14.99	14.99	1.39	1.39	1.39	1.39	1.39
1038803	3	5	15.04	13.71	18.28	15.62	16.38	1.40	1.27	1.70	1.45	1.52
1030605	3	0	15.28	14.37	18.54	15.97	16.64	1.42	1.34	1.72	1.48	1.55
1031101	3	5	15.31	14.69	17.54	15.81	16.21	1.42	1.36	1.63	1.47	1.51
1010215	1	6	15.49	12.40	16.53	14.12	14.81	1.44	1.15	1.54	1.31	1.38
2010214	4	0	15.52	15.47	15.59	15.52	15.54	1.44	1.44	1.45	1.44	1.44
2010218	4	0	15.52	15.47	15.59	15.52	15.54	1.44	1.44	1.45	1.44	1.44
2010216	4	0	15.52	15.47	15.59	15.52	15.54	1.44	1.44	1.45	1.44	1.44
2010211	4	0	15.52	15.47	15.59	15.52	15.54	1.44	1.44	1.45	1.44	1.44
1010619	1	1	15.59	12.20	16.27	13.89	14.57	1.45	1.13	1.51	1.29	1.35
1021025	2	1	15.70	12.56	16.68	14.52	14.72	1.46	1.17	1.55	1.35	1.37
2100130	13	1	15.78	16.32	21.70	18.77	19.25	1.47	1.52	2.02	1.74	1.79
2100141	13	1	16.04	16.62	22.10	19.13	19.58	1.49	1.54	2.05	1.78	1.82
1030201	3	4	16.16	14.96	20.07	17.14	17.72	1.50	1.39	1.86	1.59	1.65
1010206	1	1	16.17	12.75	17.01	14.53	15.23	1.50	1.19	1.58	1.35	1.42
1010207	1	1	16.17	12.75	17.01	14.53	15.23	1.50	1.19	1.58	1.35	1.42
1010205	1	1	16.17	12.75	17.01	14.53	15.23	1.50	1.19	1.58	1.35	1.42
1010305	1	6	16.67	13.60	18.09	15.61	16.08	1.55	1.26	1.68	1.45	1.49
1038804	3	5	16.95	16.14	17.75	17.75	16.14	1.58	1.50	1.65	1.65	1.50
2020316	5	2	16.95	13.81	18.66	15.73	16.50	1.58	1.28	1.73	1.46	1.53
2020308	5	2	16.95	13.81	18.66	15.73	16.50	1.58	1.28	1.73	1.46	1.53
2020312	5	2	16.95	13.81	18.66	15.73	16.50	1.58	1.28	1.73	1.46	1.53
2020304	5	2	16.95	13.81	18.66	15.73	16.50	1.58	1.28	1.73	1.46	1.53
2020314	5	2	16.95	13.81	18.66	15.73	16.50	1.58	1.28	1.73	1.46	1.53
2020306	5	2	16.95	13.81	18.66	15.73	16.50	1.58	1.28	1.73	1.46	1.53
2020301	5	2	16.95	13.81	18.66	15.73	16.50	1.58	1.28	1.73	1.46	1.53
2020318	5	2	16.95	13.81	18.66	15.73	16.50	1.58	1.28	1.73	1.46	1.53
2020317	5	2	16.95	13.81	18.66	15.73	16.50	1.58	1.28	1.73	1.46	1.53
2020302	5	2	16.95	13.81	18.66	15.73	16.50	1.58	1.28	1.73	1.46	1.53

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
2020303	5	2	16.95	13.81	18.66	15.73	16.50	1.58	1.28	1.73	1.46	1.53
1010225	1	6	16.99	13.59	18.12	15.48	16.23	1.58	1.26	1.68	1.44	1.51
1010216	1	6	16.99	13.59	18.12	15.48	16.23	1.58	1.26	1.68	1.44	1.51
2010326	4	7	17.63	17.63	17.63	17.63	17.63	1.64	1.64	1.64	1.64	1.64
2010325	4	7	17.63	17.63	17.63	17.63	17.63	1.64	1.64	1.64	1.64	1.64
1030404	3	5	17.75	22.61	22.61	22.61	22.61	1.65	2.10	2.10	2.10	2.10
2010228	4	7	18.24	18.24	18.24	18.24	18.24	1.70	1.70	1.70	1.70	1.70
2010225	4	7	18.24	18.24	18.24	18.24	18.24	1.70	1.70	1.70	1.70	1.70
2010226	4	0	18.24	18.24	18.24	18.24	18.24	1.70	1.70	1.70	1.70	1.70
1022044	2	6	18.36	15.08	19.50	16.89	17.68	1.71	1.40	1.81	1.57	1.64
1022040	2	1	18.36	15.08	19.50	16.89	17.68	1.71	1.40	1.81	1.57	1.64
1022051	2	1	18.36	15.08	19.50	16.89	17.68	1.71	1.40	1.81	1.57	1.64
1022035	2	6	18.36	15.08	19.50	16.89	17.68	1.71	1.40	1.81	1.57	1.64
1022046	2	1	18.36	15.08	19.50	16.89	17.68	1.71	1.40	1.81	1.57	1.64
1022043	2	6	18.36	15.08	19.50	16.89	17.68	1.71	1.40	1.81	1.57	1.64
1022033	2	6	18.36	15.08	19.50	16.89	17.68	1.71	1.40	1.81	1.57	1.64
1022032	2	1	18.43	15.50	20.54	18.02	18.02	1.71	1.44	1.91	1.67	1.67
2100138	13	1	18.51	19.28	25.62	22.23	22.68	1.72	1.79	2.38	2.07	2.11
2100140	13	1	18.51	19.28	25.62	22.23	22.68	1.72	1.79	2.38	2.07	2.11
2100125	13	1	18.51	19.28	25.62	22.23	22.68	1.72	1.79	2.38	2.07	2.11
2100127	13	1	18.51	19.28	25.62	22.23	22.68	1.72	1.79	2.38	2.07	2.11
2100122	13	1	18.51	19.28	25.62	22.23	22.68	1.72	1.79	2.38	2.07	2.11
2100143	13	0	18.51	19.28	25.62	22.23	22.68	1.72	1.79	2.38	2.07	2.11
2053014	8	2	18.53	15.27	20.67	17.39	18.24	1.72	1.42	1.92	1.62	1.70
2053016	8	2	18.53	15.27	20.67	17.39	18.24	1.72	1.42	1.92	1.62	1.70
2053015	8	2	18.53	15.27	20.67	17.39	18.24	1.72	1.42	1.92	1.62	1.70
2010316	4	0	18.56	18.56	18.56	18.56	18.56	1.73	1.73	1.73	1.73	1.73
1022063	2	6	18.63	15.35	19.72	17.14	17.93	1.73	1.43	1.83	1.59	1.67
1022055	2	6	18.63	15.35	19.72	17.14	17.93	1.73	1.43	1.83	1.59	1.67
1022068	2	1	18.63	15.35	19.72	17.14	17.93	1.73	1.43	1.83	1.59	1.67
1022059	2	1	18.63	15.35	19.72	17.14	17.93	1.73	1.43	1.83	1.59	1.67
1022058	2	1	18.63	15.35	19.72	17.14	17.93	1.73	1.43	1.83	1.59	1.67
1022064	2	6	18.63	15.35	19.72	17.14	17.93	1.73	1.43	1.83	1.59	1.67
1022065	2	1	18.63	15.35	19.72	17.14	17.93	1.73	1.43	1.83	1.59	1.67
1022071	2	1	18.63	15.35	19.72	17.14	17.93	1.73	1.43	1.83	1.59	1.67

WS	BLDG	LTGSYS	Watts per Square Meter: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	Watts per Square Foot: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1022056	2	6	18.63	15.35	19.72	17.14	17.93	1.73	1.43	1.83	1.59	1.67
2100106	13	1	18.69	19.86	24.95	22.14	22.67	1.74	1.85	2.32	2.06	2.11
1010226	1	1	18.76	14.90	19.86	16.97	17.80	1.74	1.38	1.85	1.58	1.65
2010111	4	7	18.89	18.89	18.89	18.89	18.89	1.76	1.76	1.76	1.76	1.76
2092917	12	1	18.95	15.36	20.41	17.49	18.28	1.76	1.43	1.90	1.63	1.70
2092971	12	1	18.95	15.36	20.41	17.49	18.28	1.76	1.43	1.90	1.63	1.70
2092977	12	1	18.95	15.36	20.41	17.49	18.28	1.76	1.43	1.90	1.63	1.70
2092925	12	1	18.95	15.36	20.41	17.49	18.28	1.76	1.43	1.90	1.63	1.70
2092903	12	1	18.95	15.36	20.41	17.49	18.28	1.76	1.43	1.90	1.63	1.70
2092973	12	1	18.95	15.36	20.41	17.49	18.28	1.76	1.43	1.90	1.63	1.70
2092941	12	1	18.95	15.36	20.41	17.49	18.28	1.76	1.43	1.90	1.63	1.70
2092911	12	1	18.95	15.36	20.41	17.49	18.28	1.76	1.43	1.90	1.63	1.70
2092952	12	1	18.95	15.36	20.41	17.49	18.28	1.76	1.43	1.90	1.63	1.70
2092905	12	1	18.95	15.36	20.41	17.49	18.28	1.76	1.43	1.90	1.63	1.70
2092908	12	1	18.95	15.36	20.41	17.49	18.28	1.76	1.43	1.90	1.63	1.70
2092960	12	1	18.95	15.36	20.41	17.49	18.28	1.76	1.43	1.90	1.63	1.70
2020209	5	2	18.97	15.46	20.88	17.61	18.46	1.76	1.44	1.94	1.64	1.72
2020205	5	2	18.97	15.46	20.88	17.61	18.46	1.76	1.44	1.94	1.64	1.72
2020207	5	0	18.97	15.46	20.88	17.61	18.46	1.76	1.44	1.94	1.64	1.72
2020203	5	2	18.97	15.46	20.88	17.61	18.46	1.76	1.44	1.94	1.64	1.72
2020204	5	2	18.97	15.46	20.88	17.61	18.46	1.76	1.44	1.94	1.64	1.72
2020208	5	0	18.97	15.46	20.88	17.61	18.46	1.76	1.44	1.94	1.64	1.72
1010202	1	1	19.00	15.78	20.05	17.40	18.44	1.77	1.47	1.86	1.62	1.71
2100178	13	1	19.28	20.10	26.71	23.18	23.63	1.79	1.87	2.48	2.15	2.20
2070501	10	4	19.39	16.34	21.33	18.30	19.10	1.80	1.52	1.98	1.70	1.78
2070513	10	4	19.39	16.34	21.33	18.30	19.10	1.80	1.52	1.98	1.70	1.78
1023006	2	6	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1023025	2	6	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1023001	2	1	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1023021	2	6	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1023023	2	6	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1023019	2	1	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1023003	2	6	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1023007	2	1	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1023009	2	6	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75

WS	BLDG	LTGSYS	Watts per Square Meter: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	Watts per Square Foot: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1023002	2	1	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1023005	2	1	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1023017	2	1	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1023024	2	1	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1023012	2	6	19.51	16.04	20.71	17.96	18.79	1.81	1.49	1.92	1.67	1.75
1030601	3	5	19.53	18.85	21.18	20.70	19.33	1.82	1.75	1.97	1.92	1.80
2060307	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060323	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060309	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060413	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060325	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060405	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060305	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060421	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060422	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060317	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060416	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060311	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060418	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060411	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060326	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060315	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060316	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060423	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060424	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060401	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060402	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060321	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060412	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060417	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060414	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060301	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060302	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060409	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060304	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
2060419	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060306	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060407	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060308	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060403	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060408	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060313	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060410	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060404	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060324	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2060322	9	2	19.54	15.81	21.08	18.01	18.88	1.82	1.47	1.96	1.67	1.76
2010323	4	7	19.59	19.59	19.59	19.59	19.59	1.82	1.82	1.82	1.82	1.82
1021055	2	6	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1021046	2	1	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1021065	2	1	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1021047	2	1	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1021058	2	1	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1021059	2	1	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1021060	2	1	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1021056	2	1	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1021038	2	1	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1021064	2	6	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1021050	2	1	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1021062	2	1	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1021048	2	1	19.60	16.11	20.81	18.04	18.88	1.82	1.50	1.93	1.68	1.75
1038801	3	5	19.77	18.02	24.02	20.52	21.52	1.84	1.67	2.23	1.91	2.00
1031118	3	4	19.86	18.65	24.38	21.08	21.67	1.85	1.73	2.27	1.96	2.01
2040201	7	3	19.89	18.84	25.13	21.46	22.51	1.85	1.75	2.34	1.99	2.09
1021032	2	6	19.97	16.44	21.16	18.38	19.23	1.86	1.53	1.97	1.71	1.79
1021035	2	1	19.97	16.44	21.16	18.38	19.23	1.86	1.53	1.97	1.71	1.79
1021028	2	1	19.97	16.44	21.16	18.38	19.23	1.86	1.53	1.97	1.71	1.79
1021037	2	1	19.97	16.44	21.16	18.38	19.23	1.86	1.53	1.97	1.71	1.79
1021036	2	1	19.97	16.44	21.16	18.38	19.23	1.86	1.53	1.97	1.71	1.79
1021029	2	1	19.97	16.44	21.16	18.38	19.23	1.86	1.53	1.97	1.71	1.79
1021031	2	1	19.97	16.44	21.16	18.38	19.23	1.86	1.53	1.97	1.71	1.79

WS	BLDG	LTGSYS	Watts per Square Meter: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	Watts per Square Foot: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1021024	2	1	19.97	16.44	21.16	18.38	19.23	1.86	1.53	1.97	1.71	1.79
1021026	2	1	19.97	16.44	21.16	18.38	19.23	1.86	1.53	1.97	1.71	1.79
2020313	5	2	19.97	18.35	23.20	20.27	21.04	1.86	1.71	2.16	1.88	1.96
1010632	1	6	20.17	16.59	21.52	18.71	19.40	1.87	1.54	2.00	1.74	1.80
1038802	3	5	20.20	17.22	22.95	19.61	20.56	1.88	1.60	2.13	1.82	1.91
2010302	4	7	20.22	20.22	20.22	20.22	20.22	1.88	1.88	1.88	1.88	1.88
1022067	2	1	20.23	16.89	21.42	18.84	19.46	1.88	1.57	1.99	1.75	1.81
1022069	2	1	20.23	16.89	21.42	18.84	19.46	1.88	1.57	1.99	1.75	1.81
1022053	2	1	20.23	16.89	21.42	18.84	19.46	1.88	1.57	1.99	1.75	1.81
2010314	4	7	20.35	20.35	20.35	20.35	20.35	1.89	1.89	1.89	1.89	1.89
2010312	4	0	20.35	20.35	20.35	20.35	20.35	1.89	1.89	1.89	1.89	1.89
2010230	4	7	20.45	20.45	20.45	20.45	20.45	1.90	1.90	1.90	1.90	1.90
2100176	13	1	20.54	21.46	28.51	24.76	25.21	1.91	1.99	2.65	2.30	2.34
2040305	7	3	20.57	17.03	22.70	19.39	20.34	1.91	1.58	2.11	1.80	1.89
2100112	13	1	20.65	21.20	28.21	24.34	25.07	1.92	1.97	2.62	2.26	2.33
2100111	13	1	20.65	21.20	28.21	24.34	25.07	1.92	1.97	2.62	2.26	2.33
1022086	2	1	20.74	16.78	22.37	19.11	20.04	1.93	1.56	2.08	1.78	1.86
1022076	2	1	20.74	16.78	22.37	19.11	20.04	1.93	1.56	2.08	1.78	1.86
1022074	2	1	20.74	16.78	22.37	19.11	20.04	1.93	1.56	2.08	1.78	1.86
1022080	2	1	20.74	16.78	22.37	19.11	20.04	1.93	1.56	2.08	1.78	1.86
1022083	2	1	20.74	16.78	22.37	19.11	20.04	1.93	1.56	2.08	1.78	1.86
1022082	2	1	20.74	16.78	22.37	19.11	20.04	1.93	1.56	2.08	1.78	1.86
1022077	2	1	20.74	16.78	22.37	19.11	20.04	1.93	1.56	2.08	1.78	1.86
1031001	3	4	20.88	19.64	25.47	22.16	22.71	1.94	1.83	2.37	2.06	2.11
1021034	2	1	20.90	16.72	22.21	19.33	19.60	1.94	1.55	2.06	1.80	1.82
2081409	11	0	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081911	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081801	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2082011	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081909	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2080807	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081408	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2082001	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2080812	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2080901	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
2081905	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081413	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081003	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2080908	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081405	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2080904	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2082009	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081005	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081411	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081811	11	0	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081901	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081903	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081803	11	0	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081804	11	0	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081806	11	0	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081808	11	0	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081913	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2080804	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2080806	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2082004	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2080909	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081001	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081401	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2080801	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2080902	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081008	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081414	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2082008	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2082006	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081906	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2080906	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081406	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2081809	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2082003	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2080803	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94

WS	BLDG	LTGSYS	Watts per Square Meter: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	Watts per Square Foot: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
2081006	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
2082012	11	2	20.92	18.02	22.86	20.05	20.83	1.94	1.68	2.12	1.86	1.94
1010510	1	1	20.98	17.01	22.63	19.54	20.11	1.95	1.58	2.10	1.82	1.87
1010414	1	6	21.11	17.64	22.64	19.82	20.47	1.96	1.64	2.10	1.84	1.90
1010419	1	6	21.15	18.13	22.58	19.72	20.99	1.97	1.68	2.10	1.83	1.95
2010307	4	7	21.16	21.16	21.16	21.16	21.16	1.97	1.97	1.97	1.97	1.97
2010305	4	7	21.16	21.16	21.16	21.16	21.16	1.97	1.97	1.97	1.97	1.97
2010308	4	7	21.16	21.16	21.16	21.16	21.16	1.97	1.97	1.97	1.97	1.97
1022057	2	1	21.21	17.61	22.34	19.77	20.18	1.97	1.64	2.08	1.84	1.88
2020321	5	2	21.22	17.27	23.28	19.67	20.63	1.97	1.60	2.16	1.83	1.92
2020323	5	2	21.22	17.27	23.28	19.67	20.63	1.97	1.60	2.16	1.83	1.92
2020328	5	2	21.22	17.27	23.28	19.67	20.63	1.97	1.60	2.16	1.83	1.92
2020332	5	2	21.22	17.27	23.28	19.67	20.63	1.97	1.60	2.16	1.83	1.92
1010501	1	1	21.22	17.22	22.91	19.78	20.35	1.97	1.60	2.13	1.84	1.89
1010418	1	6	21.26	17.17	22.85	19.69	20.34	1.98	1.60	2.12	1.83	1.89
1010509	1	6	21.29	17.28	22.98	19.85	20.41	1.98	1.61	2.14	1.84	1.90
2092928	12	1	21.38	17.41	23.14	19.88	20.67	1.99	1.62	2.15	1.85	1.92
2040203	7	0	21.52	18.28	24.38	20.82	21.84	2.00	1.70	2.27	1.94	2.03
1030405	3	4	21.76	20.96	26.04	23.07	23.66	2.02	1.95	2.42	2.14	2.20
1030906	3	4	21.83	20.93	26.59	23.27	23.92	2.03	1.94	2.47	2.16	2.22
2100136	13	1	21.88	22.55	29.99	25.91	26.63	2.03	2.10	2.79	2.41	2.47
2100135	13	1	21.88	22.55	29.99	25.91	26.63	2.03	2.10	2.79	2.41	2.47
1030203	3	4	21.93	20.57	26.99	23.47	23.88	2.04	1.91	2.51	2.18	2.22
1010217	1	6	21.96	18.81	23.27	20.37	21.72	2.04	1.75	2.16	1.89	2.02
1030306	3	4	21.97	20.66	26.85	23.33	23.90	2.04	1.92	2.49	2.17	2.22
1030308	3	4	21.97	20.66	26.85	23.33	23.90	2.04	1.92	2.49	2.17	2.22
1022031	2	1	21.98	19.09	23.50	20.90	21.69	2.04	1.77	2.18	1.94	2.02
1022045	2	1	21.98	19.09	23.50	20.90	21.69	2.04	1.77	2.18	1.94	2.02
1022034	2	1	21.98	19.09	23.50	20.90	21.69	2.04	1.77	2.18	1.94	2.02
1022039	2	1	21.98	19.09	23.50	20.90	21.69	2.04	1.77	2.18	1.94	2.02
1030705	3	4	22.04	20.68	26.97	23.39	23.98	2.05	1.92	2.51	2.17	2.23
2020309	5	2	22.04	19.63	24.48	21.55	22.31	2.05	1.82	2.28	2.00	2.07
1022015	2	1	22.09	18.08	23.61	20.37	21.32	2.05	1.68	2.19	1.89	1.98
1022002	2	6	22.09	18.08	23.61	20.37	21.32	2.05	1.68	2.19	1.89	1.98
1022017	2	1	22.09	18.08	23.61	20.37	21.32	2.05	1.68	2.19	1.89	1.98

WS	BLDG	LTGSYS	Watts per Square Meter: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	Watts per Square Foot: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1022016	2	1	22.09	18.08	23.61	20.37	21.32	2.05	1.68	2.19	1.89	1.98
2100104	13	1	22.11	23.52	28.61	25.80	26.34	2.05	2.19	2.66	2.40	2.45
1010710	1	6	22.17	19.37	23.67	20.80	22.24	2.06	1.80	2.20	1.93	2.07
2100108	13	1	22.17	23.11	30.72	26.65	27.18	2.06	2.15	2.85	2.48	2.53
2092932	12	1	22.21	18.11	24.06	20.69	21.48	2.06	1.68	2.24	1.92	2.00
2092933	12	1	22.21	18.11	24.06	20.69	21.48	2.06	1.68	2.24	1.92	2.00
2092927	12	1	22.27	18.16	24.13	20.75	21.54	2.07	1.69	2.24	1.93	2.00
2100101	13	1	22.29	23.16	30.78	26.67	27.26	2.07	2.15	2.86	2.48	2.53
1010711	1	6	22.29	18.01	23.97	20.66	21.32	2.07	1.67	2.23	1.92	1.98
1022052	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
1021054	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
1022047	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
1021049	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
1022050	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
1021052	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
1021066	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
1022037	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
1023013	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
1022061	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
1022049	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
1021053	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
1021022	2	1	22.33	17.86	23.72	20.64	20.93	2.07	1.66	2.20	1.92	1.95
2020315	5	2	22.33	18.26	24.56	20.90	21.67	2.08	1.70	2.28	1.94	2.01
2100149	13	1	22.42	23.48	31.18	27.11	27.55	2.08	2.18	2.90	2.52	2.56
2100119	13	1	22.42	23.48	31.18	27.11	27.55	2.08	2.18	2.90	2.52	2.56
2100148	13	1	22.42	23.48	31.18	27.11	27.55	2.08	2.18	2.90	2.52	2.56
2100144	13	1	22.42	23.48	31.18	27.11	27.55	2.08	2.18	2.90	2.52	2.56
2100180	13	1	22.42	23.48	31.18	27.11	27.55	2.08	2.18	2.90	2.52	2.56
2100154	13	1	22.42	23.48	31.18	27.11	27.55	2.08	2.18	2.90	2.52	2.56
1030207	3	4	22.42	21.02	27.59	23.99	24.40	2.08	1.95	2.56	2.23	2.27
1010704	1	1	22.44	18.14	24.13	20.81	21.46	2.09	1.69	2.24	1.93	1.99
2092938	12	1	22.51	18.36	24.39	20.98	21.77	2.09	1.71	2.27	1.95	2.02
1010715	1	6	22.60	18.27	24.31	20.96	21.62	2.10	1.70	2.26	1.95	2.01
1031006	3	4	22.60	21.25	27.60	24.02	24.57	2.10	1.97	2.57	2.23	2.28
2092950	12	1	22.63	18.46	24.53	21.10	21.89	2.10	1.72	2.28	1.96	2.03

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
2010102	4	7	22.67	22.67	22.67	22.67	22.67	2.11	2.11	2.11	2.11	2.11
1030407	3	4	22.69	21.32	27.59	24.03	24.62	2.11	1.98	2.56	2.23	2.29
1030304	3	4	22.72	21.35	27.77	24.14	24.71	2.11	1.98	2.58	2.24	2.30
2092916	12	1	22.78	18.59	24.70	21.25	22.04	2.12	1.73	2.30	1.97	2.05
2092919	12	1	22.78	18.59	24.70	21.25	22.04	2.12	1.73	2.30	1.97	2.05
2092920	12	1	22.78	18.59	24.70	21.25	22.04	2.12	1.73	2.30	1.97	2.05
1030307	3	4	22.81	21.44	27.88	24.24	24.81	2.12	1.99	2.59	2.25	2.31
2092936	12	1	22.87	18.66	24.79	21.33	22.12	2.13	1.73	2.30	1.98	2.06
1010636	1	1	23.00	18.56	24.70	21.29	21.98	2.14	1.73	2.30	1.98	2.04
2010231	4	7	23.00	23.00	23.00	23.00	23.00	2.14	2.14	2.14	2.14	2.14
1021023	2	1	23.01	18.78	24.61	21.19	22.20	2.14	1.75	2.29	1.97	2.06
1021010	2	1	23.01	18.78	24.61	21.19	22.20	2.14	1.75	2.29	1.97	2.06
1021005	2	1	23.01	18.78	24.61	21.19	22.20	2.14	1.75	2.29	1.97	2.06
1021014	2	6	23.01	18.78	24.61	21.19	22.20	2.14	1.75	2.29	1.97	2.06
1030608	3	4	23.04	22.13	27.75	24.45	25.12	2.14	2.06	2.58	2.27	2.33
1030607	3	4	23.04	22.13	27.75	24.45	25.12	2.14	2.06	2.58	2.27	2.33
2092913	12	1	23.07	18.84	25.02	21.53	22.33	2.14	1.75	2.33	2.00	2.07
2092906	12	1	23.07	18.84	25.02	21.53	22.33	2.14	1.75	2.33	2.00	2.07
2092930	12	1	23.07	18.84	25.02	21.53	22.33	2.14	1.75	2.33	2.00	2.07
2092912	12	1	23.07	18.84	25.02	21.53	22.33	2.14	1.75	2.33	2.00	2.07
2092909	12	1	23.07	18.84	25.02	21.53	22.33	2.14	1.75	2.33	2.00	2.07
2092914	12	1	23.07	18.84	25.02	21.53	22.33	2.14	1.75	2.33	2.00	2.07
1010612	1	1	23.09	18.64	24.81	21.38	22.07	2.15	1.73	2.31	1.99	2.05
1010203	1	1	23.09	18.66	24.83	21.42	22.07	2.15	1.73	2.31	1.99	2.05
1031007	3	4	23.12	21.74	28.25	24.59	25.14	2.15	2.02	2.63	2.29	2.34
2100103	13	1	23.12	23.52	28.61	25.80	26.34	2.15	2.19	2.66	2.40	2.45
1023014	2	6	23.14	20.04	24.72	21.96	22.80	2.15	1.86	2.30	2.04	2.12
1023008	2	1	23.14	20.04	24.72	21.96	22.80	2.15	1.86	2.30	2.04	2.12
2020319	5	2	23.16	18.95	25.48	21.71	22.47	2.15	1.76	2.37	2.02	2.09
1030302	3	4	23.19	21.79	28.35	24.65	25.22	2.16	2.03	2.63	2.29	2.34
1010421	1	6	23.23	20.04	24.49	21.52	23.00	2.16	1.86	2.28	2.00	2.14
1030908	3	4	23.23	21.73	28.72	24.74	25.39	2.16	2.02	2.67	2.30	2.36
1010709	1	6	23.25	20.32	24.83	21.82	23.33	2.16	1.89	2.31	2.03	2.17
1010608	1	6	23.25	20.32	24.83	21.82	23.33	2.16	1.89	2.31	2.03	2.17
1039902	3	2	23.25	20.31	27.09	23.33	24.01	2.16	1.89	2.52	2.17	2.23

WS	BLDG	LTGSYS	LPD (W/m²)	LPDES (W/m²)	LPDSTD (W/m²)	LPDELSB (W/m²)	LPDEBSL (W/m²)	LPD (W/ft²)	LPDES (W/ft²)	LPDSTD (W/ft²)	LPDELSB (W/ft²)	LPDEBSL (W/ft²)
2092957	12	1	23.30	19.03	25.28	21.76	22.55	2.17	1.77	2.35	2.02	2.10
2092974	12	1	23.30	19.03	25.28	21.76	22.55	2.17	1.77	2.35	2.02	2.10
1031004	3	4	23.35	22.96	27.74	24.95	25.50	2.17	2.13	2.58	2.32	2.37
1021030	2	6	23.44	20.27	24.99	22.20	23.06	2.18	1.88	2.32	2.06	2.14
2092922	12	1	23.52	19.21	25.52	21.97	22.76	2.19	1.79	2.37	2.04	2.12
1030401	3	4	23.52	22.10	28.62	24.94	25.52	2.19	2.05	2.66	2.32	2.37
1010402	1	6	23.54	19.11	25.42	21.96	22.57	2.19	1.78	2.36	2.04	2.10
2010328	4	7	23.54	23.54	23.54	23.54	23.54	2.19	2.19	2.19	2.19	2.19
2010310	4	7	23.54	23.54	23.54	23.54	23.54	2.19	2.19	2.19	2.19	2.19
1010515	1	1	23.55	20.42	24.97	21.94	23.45	2.19	1.90	2.32	2.04	2.18
1022081	2	1	23.55	18.89	25.11	21.76	22.24	2.19	1.76	2.33	2.02	2.07
1022073	2	1	23.55	18.89	25.11	21.76	22.24	2.19	1.76	2.33	2.02	2.07
1010523	1	1	23.64	19.20	25.54	22.06	22.67	2.20	1.78	2.37	2.05	2.11
1010517	1	0	23.64	19.20	25.54	22.06	22.67	2.20	1.78	2.37	2.05	2.11
1010521	1	1	23.64	19.20	25.54	22.06	22.67	2.20	1.78	2.37	2.05	2.11
1010519	1	1	23.64	19.20	25.54	22.06	22.67	2.20	1.78	2.37	2.05	2.11
1010514	1	1	23.64	19.20	25.54	22.06	22.67	2.20	1.78	2.37	2.05	2.11
1010702	1	1	23.64	21.41	25.35	23.05	23.71	2.20	1.99	2.36	2.14	2.20
2081403	11	2	23.65	22.12	26.95	24.14	24.92	2.20	2.06	2.50	2.24	2.32
1010722	1	1	23.67	19.99	25.46	22.40	23.06	2.20	1.86	2.37	2.08	2.14
1010304	1	1	23.67	19.95	24.65	21.91	22.69	2.20	1.85	2.29	2.04	2.11
1030504	3	4	23.73	22.32	28.95	25.18	25.79	2.21	2.07	2.69	2.34	2.40
1030501	3	4	23.73	22.32	28.95	25.18	25.79	2.21	2.07	2.69	2.34	2.40
1031106	3	4	23.75	22.28	29.19	25.30	25.89	2.21	2.07	2.71	2.35	2.41
1010403	1	6	23.75	20.75	25.36	22.29	23.83	2.21	1.93	2.36	2.07	2.21
1010416	1	1	23.90	20.83	25.83	23.01	23.65	2.22	1.94	2.40	2.14	2.20
2060312	9	2	23.94	20.20	25.47	22.40	23.28	2.22	1.88	2.37	2.08	2.16
2020311	5	2	23.94	19.59	26.33	22.45	23.22	2.23	1.82	2.45	2.09	2.16
1010316	1	1	23.99	19.50	25.93	22.40	23.03	2.23	1.81	2.41	2.08	2.14
1010315	1	1	23.99	19.50	25.93	22.40	23.03	2.23	1.81	2.41	2.08	2.14
1023015	2	1	24.04	19.20	25.48	22.24	22.45	2.23	1.78	2.37	2.07	2.09
1031107	3	4	24.06	23.26	29.02	25.70	26.29	2.24	2.16	2.70	2.39	2.44
1031104	3	4	24.06	23.26	29.02	25.70	26.29	2.24	2.16	2.70	2.39	2.44
1010623	1	6	24.09	19.48	25.92	22.36	23.05	2.24	1.81	2.41	2.08	2.14
1010701	1	6	24.09	21.05	25.73	22.61	24.17	2.24	1.96	2.39	2.10	2.25

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1030902	3	4	24.11	23.20	29.29	25.76	26.41	2.24	2.16	2.72	2.39	2.45
1022079	2	1	24.21	20.61	26.20	22.94	23.87	2.25	1.91	2.43	2.13	2.22
1022085	2	1	24.21	20.61	26.20	22.94	23.87	2.25	1.91	2.43	2.13	2.22
1010507	1	1	24.40	19.90	26.46	22.90	23.46	2.27	1.85	2.46	2.13	2.18
2092969	12	1	24.49	20.03	26.61	22.92	23.71	2.28	1.86	2.47	2.13	2.20
1010204	1	1	24.51	19.86	26.42	22.82	23.46	2.28	1.85	2.46	2.12	2.18
1010721	1	1	24.52	19.89	26.46	22.84	23.50	2.28	1.85	2.46	2.12	2.18
1010219	1	6	24.54	20.67	26.52	23.22	23.97	2.28	1.92	2.46	2.16	2.23
2092955	12	1	24.55	20.08	26.67	22.98	23.77	2.28	1.87	2.48	2.14	2.21
1030903	3	4	24.57	22.98	30.38	26.19	26.85	2.28	2.14	2.82	2.43	2.49
2100132	13	1	24.60	25.51	33.91	29.37	30.06	2.29	2.37	3.15	2.73	2.79
1030703	3	4	24.62	24.14	29.33	26.30	26.89	2.29	2.24	2.73	2.44	2.50
1010601	1	6	24.63	19.94	26.52	22.88	23.58	2.29	1.85	2.47	2.13	2.19
2040315	7	3	24.65	21.28	28.38	24.24	25.42	2.29	1.98	2.64	2.25	2.36
1010801	1	1	24.74	21.29	26.30	23.25	24.34	2.30	1.98	2.44	2.16	2.26
2040301	7	3	24.76	20.57	27.42	23.42	24.57	2.30	1.91	2.55	2.18	2.28
2040302	7	2	24.76	20.57	27.42	23.42	24.57	2.30	1.91	2.55	2.18	2.28
1030901	3	4	24.77	23.86	30.07	26.48	27.13	2.30	2.22	2.79	2.46	2.52
1030907	3	4	24.77	23.86	30.07	26.48	27.13	2.30	2.22	2.79	2.46	2.52
1010720	1	1	24.77	20.10	26.74	23.09	23.75	2.30	1.87	2.49	2.15	2.21
1010309	1	6	24.82	22.19	26.23	23.54	24.88	2.31	2.06	2.44	2.19	2.31
1010311	1	6	24.82	22.19	26.23	23.54	24.88	2.31	2.06	2.44	2.19	2.31
1010318	1	6	24.82	22.19	26.23	23.54	24.88	2.31	2.06	2.44	2.19	2.31
1010310	1	6	24.82	22.19	26.23	23.54	24.88	2.31	2.06	2.44	2.19	2.31
1030803	3	4	24.91	23.88	30.30	26.52	27.29	2.32	2.22	2.82	2.47	2.54
2020310	5	2	25.02	21.88	26.73	23.80	24.57	2.33	2.03	2.48	2.21	2.28
1010502	1	1	25.04	20.44	27.18	23.53	24.09	2.33	1.90	2.53	2.19	2.24
1023011	2	1	25.08	22.19	26.86	24.11	24.94	2.33	2.06	2.50	2.24	2.32
2100114	13	1	25.12	26.68	33.69	29.82	30.56	2.33	2.48	3.13	2.77	2.84
1030403	3	4	25.19	24.72	29.85	26.86	27.45	2.34	2.30	2.77	2.50	2.55
2053003	8	2	25.25	20.66	28.12	23.53	24.68	2.35	1.92	2.61	2.19	2.29
2053007	8	2	25.25	20.66	28.12	23.53	24.68	2.35	1.92	2.61	2.19	2.29
2053009	8	2	25.25	20.66	28.12	23.53	24.68	2.35	1.92	2.61	2.19	2.29
2053002	8	2	25.25	20.66	28.12	23.53	24.68	2.35	1.92	2.61	2.19	2.29
2053010	8	2	25.25	20.66	28.12	23.53	24.68	2.35	1.92	2.61	2.19	2.29

WS	BLDG	LTGSYS	Watts per Square Meter: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	Watts per Square Foot: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
2100133	13	1	25.34	26.32	34.98	30.30	30.99	2.36	2.45	3.25	2.82	2.88
1010716	1	6	25.35	21.57	27.33	24.12	24.78	2.36	2.00	2.54	2.24	2.30
1010407	1	1	25.38	20.66	27.47	23.76	24.37	2.36	1.92	2.55	2.21	2.27
1030204	3	4	25.38	22.88	30.05	26.16	26.57	2.36	2.13	2.79	2.43	2.47
2070506	10	4	25.49	21.48	28.14	24.28	25.08	2.37	2.00	2.62	2.26	2.33
2070507	10	4	25.49	21.48	28.14	24.28	25.08	2.37	2.00	2.62	2.26	2.33
2053011	8	1	25.55	21.65	28.52	24.29	25.35	2.37	2.01	2.65	2.26	2.36
1022012	2	1	25.55	21.91	27.43	24.19	25.15	2.37	2.04	2.55	2.25	2.34
1022021	2	1	25.55	21.91	27.43	24.19	25.15	2.37	2.04	2.55	2.25	2.34
1023020	2	6	25.61	21.18	27.53	23.93	24.77	2.38	1.97	2.56	2.22	2.30
1030913	3	4	25.66	24.00	31.73	27.38	28.03	2.38	2.23	2.95	2.54	2.61
1030316	3	4	25.66	24.11	31.42	27.34	27.91	2.39	2.24	2.92	2.54	2.59
1030314	3	4	25.66	24.11	31.42	27.34	27.91	2.39	2.24	2.92	2.54	2.59
1030309	3	4	25.66	24.11	31.42	27.34	27.91	2.39	2.24	2.92	2.54	2.59
1030619	3	4	25.68	25.85	30.02	27.44	28.12	2.39	2.40	2.79	2.55	2.61
1021040	2	6	25.70	21.26	27.62	24.02	24.86	2.39	1.98	2.57	2.23	2.31
2040808	7	3	25.72	21.28	28.38	24.24	25.42	2.39	1.98	2.64	2.25	2.36
2092963	12	1	25.72	21.07	27.98	24.13	24.92	2.39	1.96	2.60	2.24	2.32
1030209	3	5	25.76	23.72	27.16	26.27	24.61	2.39	2.20	2.52	2.44	2.29
2020107	5	2	25.77	21.08	28.69	24.01	25.18	2.39	1.96	2.67	2.23	2.34
2100152	13	1	25.82	26.79	35.62	30.85	31.56	2.40	2.49	3.31	2.87	2.93
2020206	5	2	25.82	22.44	27.57	24.49	25.31	2.40	2.09	2.56	2.28	2.35
2070605	10	4	25.89	22.36	28.07	24.71	25.49	2.41	2.08	2.61	2.30	2.37
2020103	5	0	25.97	25.97	25.97	25.97	25.97	2.41	2.41	2.41	2.41	2.41
1010302	1	1	26.03	23.53	26.81	24.89	25.44	2.42	2.19	2.49	2.31	2.36
1030211	3	4	26.06	24.42	32.10	27.95	28.36	2.42	2.27	2.98	2.60	2.64
1030210	3	4	26.06	24.42	32.10	27.95	28.36	2.42	2.27	2.98	2.60	2.64
2100128	13	5	26.11	27.35	36.34	31.51	32.18	2.43	2.54	3.38	2.93	2.99
1030319	3	4	26.15	24.56	32.02	27.87	28.44	2.43	2.28	2.98	2.59	2.64
1022030	2	1	26.20	22.03	29.21	25.62	25.62	2.44	2.05	2.71	2.38	2.38
2040314	7	3	26.23	22.01	29.35	25.07	26.29	2.44	2.05	2.73	2.33	2.44
2092966	12	1	26.26	21.53	28.59	24.66	25.45	2.44	2.00	2.66	2.29	2.37
1010512	1	1	26.30	22.77	28.51	25.36	25.92	2.44	2.12	2.65	2.36	2.41
1010422	1	1	26.35	22.14	28.03	24.76	25.41	2.45	2.06	2.61	2.30	2.36
1022038	2	1	26.36	24.09	28.50	25.90	26.69	2.45	2.24	2.65	2.41	2.48

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1030914	3	4	26.37	24.66	32.61	28.15	28.80	2.45	2.29	3.03	2.62	2.68
2010321	4	7	26.43	26.43	26.43	26.43	26.43	2.46	2.46	2.46	2.46	2.46
2010319	4	0	26.43	26.43	26.43	26.43	26.43	2.46	2.46	2.46	2.46	2.46
2010235	4	7	26.45	26.45	26.45	26.45	26.45	2.46	2.46	2.46	2.46	2.46
1021019	2	6	26.48	22.61	28.43	25.02	26.03	2.46	2.10	2.64	2.32	2.42
1010405	1	1	26.52	22.06	29.28	25.52	25.82	2.46	2.05	2.72	2.37	2.40
1030919	3	4	26.52	24.81	32.80	28.32	28.97	2.46	2.31	3.05	2.63	2.69
2092958	12	1	26.57	21.78	28.93	24.96	25.75	2.47	2.02	2.69	2.32	2.39
2100117	13	5	26.57	27.58	36.66	31.76	32.49	2.47	2.56	3.41	2.95	3.02
2092976	12	1	26.67	21.87	29.05	25.07	25.86	2.48	2.03	2.70	2.33	2.40
1031003	3	4	26.68	24.69	31.05	27.47	28.02	2.48	2.29	2.89	2.55	2.60
1030506	3	4	26.69	25.09	32.62	28.40	29.01	2.48	2.33	3.03	2.64	2.70
2070505	10	4	26.71	22.50	29.51	25.48	26.27	2.48	2.09	2.74	2.37	2.44
1022062	2	1	26.72	22.25	28.11	25.03	25.33	2.48	2.07	2.61	2.33	2.35
2010208	4	7	26.72	28.10	28.10	28.10	28.10	2.48	2.61	2.61	2.61	2.61
2010201	4	7	26.72	28.10	28.10	28.10	28.10	2.48	2.61	2.61	2.61	2.61
2010204	4	7	26.72	28.10	28.10	28.10	28.10	2.48	2.61	2.61	2.61	2.61
2010209	4	7	26.72	28.10	28.10	28.10	28.10	2.48	2.61	2.61	2.61	2.61
2010203	4	7	26.72	28.10	28.10	28.10	28.10	2.48	2.61	2.61	2.61	2.61
2010206	4	7	26.72	28.10	28.10	28.10	28.10	2.48	2.61	2.61	2.61	2.61
1030704	3	4	26.75	24.72	31.27	27.56	28.15	2.49	2.30	2.91	2.56	2.62
2092965	12	1	26.86	23.27	28.32	25.40	26.19	2.50	2.16	2.63	2.36	2.43
1010633	1	1	26.97	21.92	29.15	25.19	25.88	2.51	2.04	2.71	2.34	2.41
2080811	11	2	26.98	24.09	28.92	26.11	26.89	2.51	2.24	2.69	2.43	2.50
1030918	3	4	27.00	25.26	33.40	28.84	29.49	2.51	2.35	3.10	2.68	2.74
1010518	1	1	27.10	24.39	30.72	27.25	27.86	2.52	2.27	2.86	2.53	2.59
1030905	3	4	27.17	25.42	33.61	29.03	29.68	2.53	2.36	3.12	2.70	2.76
2053001	8	2	27.18	22.24	30.27	25.33	26.57	2.53	2.07	2.81	2.35	2.47
1031114	3	4	27.19	25.49	33.45	29.03	29.63	2.53	2.37	3.11	2.70	2.75
1031109	3	4	27.19	25.49	33.45	29.03	29.63	2.53	2.37	3.11	2.70	2.75
1031113	3	4	27.19	25.49	33.45	29.03	29.63	2.53	2.37	3.11	2.70	2.75
2020305	5	2	27.20	24.83	33.27	28.54	29.31	2.53	2.31	3.09	2.65	2.72
2020307	5	2	27.20	24.83	33.27	28.54	29.31	2.53	2.31	3.09	2.65	2.72
2100164	13	1	27.20	28.62	38.00	33.08	33.53	2.53	2.66	3.53	3.07	3.12
2060310	9	2	27.23	24.59	29.86	26.79	27.67	2.53	2.29	2.78	2.49	2.57

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
2040818	7	3	27.32	24.40	32.53	27.79	29.15	2.54	2.27	3.02	2.58	2.71
1030406	3	4	27.45	25.41	31.93	28.25	28.84	2.55	2.36	2.97	2.63	2.68
2092935	12	1	27.48	23.27	29.40	25.94	26.73	2.55	2.16	2.73	2.41	2.48
1030611	3	4	27.50	25.79	33.68	29.25	29.92	2.56	2.40	3.13	2.72	2.78
2040309	7	3	27.53	22.79	30.38	25.95	27.22	2.56	2.12	2.82	2.41	2.53
2020202	5	0	27.57	27.57	27.57	27.57	27.57	2.56	2.56	2.56	2.56	2.56
2010222	4	7	27.60	27.60	27.60	27.60	27.60	2.57	2.57	2.57	2.57	2.57
1030804	3	4	27.61	26.90	33.24	29.50	30.27	2.57	2.50	3.09	2.74	2.81
1010705	1	1	27.63	23.71	29.87	26.46	27.12	2.57	2.20	2.78	2.46	2.52
1030602	3	4	27.66	25.94	33.87	29.42	30.09	2.57	2.41	3.15	2.73	2.80
2070633	10	4	27.68	23.87	30.07	26.46	27.24	2.57	2.22	2.79	2.46	2.53
2053008	8	2	27.76	23.53	30.99	26.40	27.55	2.58	2.19	2.88	2.45	2.56
2100151	13	1	27.76	28.93	38.44	33.35	34.02	2.58	2.69	3.57	3.10	3.16
1010401	1	6	27.77	24.83	29.35	26.34	27.84	2.58	2.31	2.73	2.45	2.59
2060406	9	2	27.78	24.05	29.32	26.24	27.12	2.58	2.23	2.72	2.44	2.52
1022041	2	1	27.79	22.96	29.40	25.85	26.51	2.58	2.13	2.73	2.40	2.46
2070510	10	4	27.84	23.45	30.77	26.58	27.38	2.59	2.18	2.86	2.47	2.54
2010233	4	7	27.84	27.84	27.84	27.84	27.84	2.59	2.59	2.59	2.59	2.59
1030409	3	4	27.88	25.38	32.97	28.75	29.34	2.59	2.36	3.06	2.67	2.73
1031112	3	4	27.99	26.25	34.46	29.91	30.50	2.60	2.44	3.20	2.78	2.83
2053019	8	2	28.07	23.95	31.06	26.76	27.88	2.61	2.23	2.89	2.49	2.59
2092901	12	1	28.08	23.77	29.68	26.37	27.08	2.61	2.21	2.76	2.45	2.52
2020334	5	2	28.16	25.85	30.36	27.64	28.36	2.62	2.40	2.82	2.57	2.64
1010430	1	1	28.18	24.27	30.51	27.07	27.72	2.62	2.26	2.84	2.52	2.58
1022008	2	1	28.18	23.22	30.42	26.34	27.30	2.62	2.16	2.83	2.45	2.54
1022020	2	1	28.18	23.22	30.42	26.34	27.30	2.62	2.16	2.83	2.45	2.54
1022025	2	1	28.18	23.22	30.42	26.34	27.30	2.62	2.16	2.83	2.45	2.54
1022028	2	1	28.18	23.22	30.42	26.34	27.30	2.62	2.16	2.83	2.45	2.54
1022009	2	1	28.18	23.22	30.42	26.34	27.30	2.62	2.16	2.83	2.45	2.54
1022019	2	1	28.18	23.22	30.42	26.34	27.30	2.62	2.16	2.83	2.45	2.54
1022004	2	1	28.18	23.22	30.42	26.34	27.30	2.62	2.16	2.83	2.45	2.54
1022023	2	1	28.18	23.22	30.42	26.34	27.30	2.62	2.16	2.83	2.45	2.54
1022006	2	6	28.18	23.22	30.42	26.34	27.30	2.62	2.16	2.83	2.45	2.54
1022001	2	1	28.18	23.22	30.42	26.34	27.30	2.62	2.16	2.83	2.45	2.54
2080809	11	2	28.19	25.29	30.12	27.58	28.36	2.62	2.35	2.80	2.56	2.64

WS	BLDG	LTGSYS	LPD	LPDES	LRDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
			Watts per Square Meter:					Watts per Square Foot:				
2020329	5	2	28.21	23.05	30.94	26.39	27.35	2.62	2.14	2.88	2.45	2.54
2020331	5	2	28.21	23.05	30.94	26.39	27.35	2.62	2.14	2.88	2.45	2.54
2100146	13	1	28.22	29.72	39.46	34.36	34.81	2.62	2.76	3.67	3.19	3.24
2100172	13	1	28.22	29.72	39.46	34.36	34.81	2.62	2.76	3.67	3.19	3.24
2100159	13	1	28.22	29.72	39.46	34.36	34.81	2.62	2.76	3.67	3.19	3.24
2100165	13	1	28.22	29.72	39.46	34.36	34.81	2.62	2.76	3.67	3.19	3.24
2100162	13	1	28.22	29.72	39.46	34.36	34.81	2.62	2.76	3.67	3.19	3.24
2100168	13	1	28.22	29.72	39.46	34.36	34.81	2.62	2.76	3.67	3.19	3.24
2100175	13	1	28.22	29.72	39.46	34.36	34.81	2.62	2.76	3.67	3.19	3.24
2100160	13	1	28.22	29.72	39.46	34.36	34.81	2.62	2.76	3.67	3.19	3.24
2100173	13	1	28.22	29.72	39.46	34.36	34.81	2.62	2.76	3.67	3.19	3.24
2100120	13	1	28.22	29.72	39.46	34.36	34.81	2.62	2.76	3.67	3.19	3.24
2100167	13	1	28.22	29.72	39.46	34.36	34.81	2.62	2.76	3.67	3.19	3.24
2092943	12	1	28.28	25.06	30.12	27.20	27.99	2.63	2.33	2.80	2.53	2.60
2030223	6	5	28.30	25.32	30.08	27.50	27.90	2.63	2.35	2.80	2.56	2.59
2030220	6	5	28.30	25.32	30.08	27.50	27.90	2.63	2.35	2.80	2.56	2.59
2030215	6	5	28.30	25.32	30.08	27.50	27.90	2.63	2.35	2.80	2.56	2.59
2060318	9	2	28.33	24.59	29.86	26.79	27.67	2.63	2.29	2.78	2.49	2.57
1010214	1	1	28.38	25.03	30.12	26.61	28.54	2.64	2.33	2.80	2.47	2.65
1010213	1	1	28.38	25.03	30.12	26.61	28.54	2.64	2.33	2.80	2.47	2.65
2053025	8	2	28.48	23.30	31.71	26.54	27.83	2.65	2.17	2.95	2.47	2.59
1030806	3	4	28.51	27.38	34.05	29.94	31.12	2.65	2.54	3.16	2.78	2.89
2070705	10	4	28.51	24.98	30.71	27.40	28.10	2.65	2.32	2.85	2.55	2.61
2070504	10	4	28.54	24.05	31.55	27.27	28.07	2.65	2.23	2.93	2.53	2.61
2053004	8	2	28.54	23.76	31.53	26.75	27.95	2.65	2.21	2.93	2.49	2.60
2040821	7	3	28.56	25.54	34.05	29.09	30.51	2.65	2.37	3.16	2.70	2.84
2010317	4	0	28.63	28.63	28.63	28.63	28.63	2.66	2.66	2.66	2.66	2.66
1030909	3	4	28.70	26.85	35.51	30.69	31.34	2.67	2.50	3.30	2.85	2.91
1030606	3	4	28.73	26.58	33.65	29.62	30.29	2.67	2.47	3.13	2.75	2.82
2010118	4	7	28.75	29.78	29.78	29.78	29.78	2.67	2.77	2.77	2.77	2.77
2010115	4	7	28.75	29.78	29.78	29.78	29.78	2.67	2.77	2.77	2.77	2.77
2010122	4	7	28.75	29.78	29.78	29.78	29.78	2.67	2.77	2.77	2.77	2.77
2010123	4	7	28.75	29.78	29.78	29.78	29.78	2.67	2.77	2.77	2.77	2.77
2010117	4	7	28.75	29.78	29.78	29.78	29.78	2.67	2.77	2.77	2.77	2.77
2010120	4	7	28.75	29.78	29.78	29.78	29.78	2.67	2.77	2.77	2.77	2.77

WS	BLDG	LTGSYS	Watts per Square Meter: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	Watts per Square Foot: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
2010113	4	7	28.75	29.78	29.78	29.78	29.78	2.67	2.77	2.77	2.77	2.77
1030814	3	4	28.79	26.96	35.55	30.69	31.45	2.68	2.51	3.30	2.85	2.92
1039901	3	3	28.83	25.59	34.01	29.52	30.08	2.68	2.38	3.16	2.74	2.80
1022070	2	1	28.89	26.99	31.35	28.77	29.57	2.68	2.51	2.91	2.67	2.75
2020333	5	2	28.99	23.69	31.79	27.14	28.10	2.69	2.20	2.95	2.52	2.61
2070634	10	4	29.01	25.69	31.04	27.86	28.64	2.70	2.39	2.88	2.59	2.66
1031108	3	4	29.06	27.54	34.57	30.75	31.16	2.70	2.56	3.21	2.86	2.90
2092962	12	1	29.11	23.92	31.77	27.45	28.24	2.71	2.22	2.95	2.55	2.62
1021006	2	6	29.11	23.93	31.42	27.17	28.18	2.71	2.22	2.92	2.52	2.62
1021001	2	1	29.11	23.93	31.42	27.17	28.18	2.71	2.22	2.92	2.52	2.62
1021012	2	1	29.11	23.93	31.42	27.17	28.18	2.71	2.22	2.92	2.52	2.62
1030805	3	4	29.11	27.98	34.74	30.58	31.78	2.71	2.60	3.23	2.84	2.95
2070626	10	4	29.13	25.10	31.70	27.89	28.67	2.71	2.33	2.95	2.59	2.66
2070623	10	4	29.13	25.10	31.70	27.89	28.67	2.71	2.33	2.95	2.59	2.66
1031110	3	4	29.15	27.33	35.89	31.17	31.76	2.71	2.54	3.34	2.90	2.95
1010622	1	6	29.18	24.56	31.03	27.45	28.14	2.71	2.28	2.88	2.55	2.62
1010408	1	1	29.19	25.33	31.66	28.19	28.80	2.71	2.35	2.94	2.62	2.68
1031012	3	4	29.20	27.42	35.78	31.20	31.75	2.71	2.55	3.33	2.90	2.95
1031010	3	4	29.20	27.42	35.78	31.20	31.75	2.71	2.55	3.33	2.90	2.95
2040210	7	3	29.21	25.54	34.05	29.09	30.51	2.71	2.37	3.16	2.70	2.84
1010625	1	1	29.22	25.08	31.59	27.99	28.69	2.72	2.33	2.94	2.60	2.67
1010616	1	1	29.22	25.08	31.59	27.99	28.69	2.72	2.33	2.94	2.60	2.67
1010610	1	6	29.22	25.08	31.59	27.99	28.69	2.72	2.33	2.94	2.60	2.67
1010611	1	1	29.22	25.08	31.59	27.99	28.69	2.72	2.33	2.94	2.60	2.67
1030821	3	4	29.27	27.41	36.15	31.21	31.98	2.72	2.55	3.36	2.90	2.97
2020324	5	2	29.29	25.34	31.35	27.74	28.70	2.72	2.35	2.91	2.58	2.67
2100116	13	5	29.39	30.61	40.68	35.28	36.01	2.73	2.84	3.78	3.28	3.35
2070615	10	4	29.40	25.82	31.62	28.21	29.00	2.73	2.40	2.94	2.62	2.69
1021042	2	1	29.41	27.23	31.93	29.16	30.00	2.73	2.53	2.97	2.71	2.79
1021061	2	6	29.41	27.23	31.93	29.16	30.00	2.73	2.53	2.97	2.71	2.79
1021041	2	1	29.41	27.23	31.93	29.16	30.00	2.73	2.53	2.97	2.71	2.79
1021043	2	1	29.41	27.23	31.93	29.16	30.00	2.73	2.53	2.97	2.71	2.79
2040806	7	3	29.44	25.54	34.05	29.09	30.51	2.74	2.37	3.16	2.70	2.84
2092968	12	1	29.50	24.25	32.21	27.83	28.63	2.74	2.25	2.99	2.59	2.66
2040313	7	3	29.56	25.54	34.05	29.09	30.51	2.75	2.37	3.16	2.70	2.84

WS	BLDG	LTGSYS	Watts per Square Meter: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	Watts per Square Foot: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1030911	3	4	29.61	27.70	36.63	31.68	32.33	2.75	2.57	3.40	2.94	3.00
2070508	10	4	29.75	25.07	32.90	28.46	29.25	2.76	2.33	3.06	2.64	2.72
1030315	3	4	29.79	27.96	36.53	31.83	32.40	2.77	2.60	3.39	2.96	3.01
1030313	3	4	29.79	27.96	36.53	31.83	32.40	2.77	2.60	3.39	2.96	3.01
2040819	7	3	29.80	25.54	34.05	29.09	30.51	2.77	2.37	3.16	2.70	2.84
2030260	6	5	29.86	26.06	31.63	28.43	29.26	2.78	2.42	2.94	2.64	2.72
2030261	6	5	29.86	26.06	31.63	28.43	29.26	2.78	2.42	2.94	2.64	2.72
2030274	6	5	29.86	26.06	31.63	28.43	29.26	2.78	2.42	2.94	2.64	2.72
2030265	6	5	29.86	26.06	31.63	28.43	29.26	2.78	2.42	2.94	2.64	2.72
2030269	6	5	29.86	26.06	31.63	28.43	29.26	2.78	2.42	2.94	2.64	2.72
2030279	6	5	29.86	26.06	31.63	28.43	29.26	2.78	2.42	2.94	2.64	2.72
2030250	6	5	29.86	26.06	31.63	28.43	29.26	2.78	2.42	2.94	2.64	2.72
1010424	1	1	29.89	25.32	31.83	28.25	28.90	2.78	2.35	2.96	2.63	2.69
1030710	3	4	29.93	28.05	36.75	31.97	32.56	2.78	2.61	3.42	2.97	3.03
1030709	3	4	29.93	28.05	36.75	31.97	32.56	2.78	2.61	3.42	2.97	3.03
1031115	3	4	29.94	28.06	36.86	32.02	32.61	2.78	2.61	3.43	2.98	3.03
2070627	10	5	30.05	25.87	32.72	28.79	29.57	2.79	2.40	3.04	2.68	2.75
2070620	10	4	30.14	25.95	32.82	28.87	29.66	2.80	2.41	3.05	2.68	2.76
2040208	7	3	30.21	25.54	34.05	29.09	30.51	2.81	2.37	3.16	2.70	2.84
1010607	1	1	30.22	24.65	32.77	28.36	29.06	2.81	2.29	3.05	2.64	2.70
2070619	10	4	30.23	26.02	32.92	28.96	29.75	2.81	2.42	3.06	2.69	2.76
1010520	1	1	30.26	29.06	32.71	30.58	31.19	2.81	2.70	3.04	2.84	2.90
1010717	1	1	30.40	26.91	32.29	28.55	30.64	2.82	2.50	3.00	2.65	2.85
2070628	10	4	30.42	26.18	33.13	29.15	29.93	2.83	2.43	3.08	2.71	2.78
1030415	3	4	30.50	28.63	37.27	32.52	33.11	2.83	2.66	3.46	3.02	3.08
1030416	3	4	30.50	28.63	37.27	32.52	33.11	2.83	2.66	3.46	3.02	3.08
1030411	3	4	30.50	28.63	37.27	32.52	33.11	2.83	2.66	3.46	3.02	3.08
2040310	7	3	30.51	25.54	34.05	29.09	30.51	2.84	2.37	3.16	2.70	2.84
2070721	10	4	30.51	26.67	32.94	29.36	30.06	2.84	2.48	3.06	2.73	2.79
1030205	3	4	30.54	28.82	34.94	31.49	32.06	2.84	2.68	3.25	2.93	2.98
2020320	5	2	30.54	24.98	33.50	28.63	29.59	2.84	2.32	3.11	2.66	2.75
2053006	8	2	30.62	26.07	34.68	29.38	30.71	2.85	2.42	3.22	2.73	2.85
2030210	6	5	30.63	27.53	32.55	29.82	30.25	2.85	2.56	3.03	2.77	2.81
1030915	3	4	30.65	28.66	37.91	32.80	33.45	2.85	2.66	3.52	3.05	3.11
1030912	3	4	30.65	28.66	37.91	32.80	33.45	2.85	2.66	3.52	3.05	3.11

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LRDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
2070608	10	4	30.73	26.44	33.47	29.45	30.23	2.86	2.46	3.11	2.74	2.81
2070624	10	4	30.73	26.44	33.47	29.45	30.23	2.86	2.46	3.11	2.74	2.81
2070609	10	4	30.73	26.44	33.47	29.45	30.23	2.86	2.46	3.11	2.74	2.81
2030229	6	5	30.77	26.95	32.52	29.30	30.17	2.86	2.50	3.02	2.72	2.80
2030228	6	5	30.77	26.95	32.52	29.30	30.17	2.86	2.50	3.02	2.72	2.80
2030242	6	5	30.77	26.95	32.52	29.30	30.17	2.86	2.50	3.02	2.72	2.80
2030234	6	5	30.77	26.95	32.52	29.30	30.17	2.86	2.50	3.02	2.72	2.80
2030236	6	5	30.77	26.95	32.52	29.30	30.17	2.86	2.50	3.02	2.72	2.80
2030247	6	5	30.77	26.95	32.52	29.30	30.17	2.86	2.50	3.02	2.72	2.80
2030233	6	5	30.77	26.95	32.52	29.30	30.17	2.86	2.50	3.02	2.72	2.80
2030231	6	5	30.77	26.95	32.52	29.30	30.17	2.86	2.50	3.02	2.72	2.80
2030245	6	5	30.77	26.95	32.52	29.30	30.17	2.86	2.50	3.02	2.72	2.80
2030237	6	5	30.77	26.95	32.52	29.30	30.17	2.86	2.50	3.02	2.72	2.80
2030239	6	5	30.77	26.95	32.52	29.30	30.17	2.86	2.50	3.02	2.72	2.80
1030802	3	5	30.81	29.47	32.15	32.15	29.47	2.86	2.74	2.99	2.99	2.74
2070606	10	4	30.83	26.53	33.59	29.55	30.34	2.87	2.47	3.12	2.75	2.82
2070612	10	4	30.83	26.53	33.59	29.55	30.34	2.87	2.47	3.12	2.75	2.82
1031116	3	4	30.85	28.79	34.99	31.59	31.99	2.87	2.68	3.25	2.94	2.97
2040307	7	3	30.86	25.54	34.05	29.09	30.51	2.87	2.37	3.16	2.70	2.84
2040212	7	3	30.86	25.54	34.05	29.09	30.51	2.87	2.37	3.16	2.70	2.84
2040306	7	3	30.86	25.54	34.05	29.09	30.51	2.87	2.37	3.16	2.70	2.84
2040213	7	3	30.86	25.54	34.05	29.09	30.51	2.87	2.37	3.16	2.70	2.84
2040304	7	3	30.86	25.54	34.05	29.09	30.51	2.87	2.37	3.16	2.70	2.84
2040206	7	3	30.97	25.63	34.18	29.19	30.62	2.88	2.38	3.18	2.71	2.85
2040207	7	3	30.97	25.63	34.18	29.19	30.62	2.88	2.38	3.18	2.71	2.85
1030421	3	4	30.99	31.33	36.93	33.70	34.29	2.88	2.91	3.43	3.13	3.19
1010639	1	1	31.02	25.33	33.67	29.15	29.84	2.88	2.35	3.13	2.71	2.77
1010621	1	6	31.02	28.75	32.45	29.59	31.61	2.88	2.67	3.02	2.75	2.94
1031015	3	4	31.09	28.13	36.73	32.03	32.58	2.89	2.61	3.41	2.98	3.03
1030702	3	5	31.10	29.61	32.58	32.58	29.61	2.89	2.75	3.03	3.03	2.75
1010706	1	1	31.11	25.45	33.83	29.31	29.97	2.89	2.37	3.14	2.72	2.79
2092924	12	1	31.14	25.64	34.04	29.44	30.24	2.89	2.38	3.16	2.74	2.81
1030808	3	4	31.14	28.75	36.75	32.19	32.96	2.89	2.67	3.42	2.99	3.06
1010624	1	1	31.15	26.88	33.73	29.96	30.65	2.89	2.50	3.13	2.78	2.85
1010606	1	0	31.15	26.88	33.73	29.96	30.65	2.89	2.50	3.13	2.78	2.85

WS	BLDG	LTGSYS	Watts per Square Meter: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	Watts per Square Foot: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1010628	1	1	31.15	26.88	33.73	29.96	30.65	2.89	2.50	3.13	2.78	2.85
1010614	1	1	31.15	26.88	33.73	29.96	30.65	2.89	2.50	3.13	2.78	2.85
1010618	1	1	31.15	26.88	33.73	29.96	30.65	2.89	2.50	3.13	2.78	2.85
1010627	1	1	31.15	26.88	33.73	29.96	30.65	2.89	2.50	3.13	2.78	2.85
2040812	7	3	31.28	26.88	35.84	30.61	32.11	2.91	2.50	3.33	2.85	2.98
2040815	7	3	31.28	26.88	35.84	30.61	32.11	2.91	2.50	3.33	2.85	2.98
2040816	7	3	31.28	26.88	35.84	30.61	32.11	2.91	2.50	3.33	2.85	2.98
2040809	7	3	31.28	26.88	35.84	30.61	32.11	2.91	2.50	3.33	2.85	2.98
2040810	7	3	31.28	26.88	35.84	30.61	32.11	2.91	2.50	3.33	2.85	2.98
2040811	7	3	31.28	26.88	35.84	30.61	32.11	2.91	2.50	3.33	2.85	2.98
2040814	7	3	31.28	26.88	35.84	30.61	32.11	2.91	2.50	3.33	2.85	2.98
2040817	7	3	31.28	26.88	35.84	30.61	32.11	2.91	2.50	3.33	2.85	2.98
2040813	7	0	31.28	26.88	35.84	30.61	32.11	2.91	2.50	3.33	2.85	2.98
1010428	1	1	31.28	28.22	32.10	29.84	30.48	2.91	2.62	2.98	2.77	2.83
1031011	3	4	31.31	28.32	36.98	32.25	32.80	2.91	2.63	3.44	3.00	3.05
1031103	3	4	31.45	29.63	36.58	32.66	33.26	2.92	2.75	3.40	3.04	3.09
2070707	10	4	31.49	27.50	34.04	30.32	31.02	2.93	2.56	3.16	2.82	2.88
2070706	10	4	31.49	27.50	34.04	30.32	31.02	2.93	2.56	3.16	2.82	2.88
1030507	3	4	31.54	29.62	38.63	33.67	34.28	2.93	2.75	3.59	3.13	3.19
1030508	3	4	31.54	29.62	38.63	33.67	34.28	2.93	2.75	3.59	3.13	3.19
2070712	10	4	31.60	27.58	34.16	30.43	31.13	2.94	2.56	3.17	2.83	2.89
2010329	4	0	31.63	30.92	32.64	31.63	31.92	2.94	2.87	3.03	2.94	2.97
1030312	3	4	31.68	28.68	37.48	32.66	33.23	2.94	2.67	3.48	3.04	3.09
1010308	1	6	31.71	28.13	33.62	30.56	31.19	2.95	2.61	3.12	2.84	2.90
1030614	3	4	31.78	29.79	38.98	33.90	34.57	2.95	2.77	3.62	3.15	3.21
1039903	3	2	31.79	28.29	37.67	32.60	33.29	2.95	2.63	3.50	3.03	3.09
1030707	3	4	31.82	28.77	37.70	32.80	33.39	2.96	2.67	3.50	3.05	3.10
1010432	1	1	31.88	26.12	34.72	30.10	30.74	2.96	2.43	3.23	2.80	2.86
2040804	7	3	31.88	27.32	36.43	31.11	32.63	2.96	2.54	3.39	2.89	3.03
2040803	7	3	31.88	27.32	36.43	31.11	32.63	2.96	2.54	3.39	2.89	3.03
2040801	7	3	31.88	27.32	36.43	31.11	32.63	2.96	2.54	3.39	2.89	3.03
2040805	7	3	31.88	27.32	36.43	31.11	32.63	2.96	2.54	3.39	2.89	3.03
1022027	2	1	31.89	29.20	34.73	31.48	32.44	2.96	2.71	3.23	2.93	3.01
2020201	5	0	31.94	31.94	31.94	31.94	31.94	2.97	2.97	2.97	2.97	2.97
1030503	3	4	32.09	32.34	37.37	34.43	35.00	2.98	3.01	3.47	3.20	3.25

WS	BLDG	LTGSYS	Watts per Square Meter: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	Watts per Square Foot: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
2092946	12	1	32.28	28.43	34.73	31.18	31.97	3.00	2.64	3.23	2.90	2.97
1010220	1	1	32.48	26.64	35.40	30.71	31.33	3.02	2.48	3.29	2.85	2.91
2030258	6	5	32.73	28.92	34.50	31.29	32.12	3.04	2.69	3.21	2.91	2.99
2092949	12	1	32.78	28.88	35.37	31.73	32.52	3.05	2.68	3.29	2.95	3.02
1021007	2	1	32.82	29.90	35.73	32.31	33.32	3.05	2.78	3.32	3.00	3.10
1021067	2	1	32.84	27.59	35.51	30.89	32.21	3.05	2.56	3.30	2.87	2.99
1010429	1	1	32.84	28.34	34.74	31.22	31.86	3.05	2.63	3.23	2.90	2.96
1030810	3	4	32.92	30.81	40.66	35.17	35.94	3.06	2.86	3.78	3.27	3.34
1030811	3	4	32.92	30.81	40.66	35.17	35.94	3.06	2.86	3.78	3.27	3.34
1010638	1	1	32.92	26.93	35.80	31.02	31.71	3.06	2.50	3.33	2.88	2.95
1010602	1	6	32.93	30.13	34.43	31.56	33.00	3.06	2.80	3.20	2.93	3.07
2053021	8	2	32.93	26.95	36.68	30.69	32.19	3.06	2.50	3.41	2.85	2.99
2053018	8	2	32.93	26.95	36.68	30.69	32.19	3.06	2.50	3.41	2.85	2.99
1030410	3	5	33.08	31.75	35.35	34.89	32.21	3.07	2.95	3.29	3.24	2.99
2053022	8	2	33.18	27.09	36.72	30.85	32.36	3.08	2.52	3.41	2.87	3.01
2040316	7	3	33.34	28.08	37.42	32.04	33.46	3.10	2.61	3.48	2.98	3.11
2040209	7	3	33.39	30.30	38.82	33.85	35.27	3.10	2.82	3.61	3.15	3.28
2092944	12	1	33.43	29.59	35.81	32.30	33.10	3.11	2.75	3.33	3.00	3.08
2070611	10	4	33.50	30.00	35.66	32.32	33.11	3.11	2.79	3.31	3.00	3.08
1031009	3	4	33.51	30.26	39.55	34.50	35.05	3.11	2.81	3.68	3.21	3.26
2010105	4	7	33.64	34.93	34.93	34.93	34.93	3.13	3.25	3.25	3.25	3.25
2010103	4	7	33.64	34.93	34.93	34.93	34.93	3.13	3.25	3.25	3.25	3.25
2053005	8	2	33.67	27.55	37.49	31.37	32.90	3.13	2.56	3.48	2.92	3.06
2020102	5	0	33.74	32.40	34.49	33.44	33.44	3.14	3.01	3.21	3.11	3.11
1030419	3	4	33.78	30.55	39.83	34.77	35.35	3.14	2.84	3.70	3.23	3.29
2070714	10	4	33.78	29.42	36.59	32.56	33.26	3.14	2.73	3.40	3.03	3.09
1030809	3	4	33.83	32.02	40.37	35.24	36.79	3.14	2.98	3.75	3.27	3.42
1030310	3	4	33.83	30.57	39.98	34.85	35.43	3.14	2.84	3.72	3.24	3.29
1030917	3	4	33.87	28.66	37.91	32.80	33.45	3.15	2.66	3.52	3.05	3.11
2020105	5	0	33.96	34.77	34.77	34.77	34.77	3.16	3.23	3.23	3.23	3.23
1031119	3	4	33.98	30.67	40.31	35.05	35.64	3.16	2.85	3.75	3.26	3.31
1010319	1	1	33.98	30.83	35.35	32.39	33.79	3.16	2.87	3.29	3.01	3.14
1010635	1	1	34.07	27.90	37.08	32.14	32.83	3.17	2.59	3.45	2.99	3.05
2020104	5	0	34.18	34.67	34.67	34.67	34.67	3.18	3.22	3.22	3.22	3.22
2030204	6	5	34.22	31.11	36.14	33.41	33.84	3.18	2.89	3.36	3.10	3.15

WS	BLDG	LTGSYS	Watts per Square Meter: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	Watts per Square Foot: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1030708	3	4	34.24	30.89	40.52	35.27	35.86	3.18	2.87	3.77	3.28	3.33
2030257	6	5	34.27	30.47	36.04	32.84	33.67	3.18	2.83	3.35	3.05	3.13
2030212	6	5	34.37	31.26	36.29	33.56	33.99	3.19	2.91	3.37	3.12	3.16
1030413	3	4	34.55	31.23	40.72	35.55	36.14	3.21	2.90	3.78	3.30	3.36
1030412	3	4	34.55	31.23	40.72	35.55	36.14	3.21	2.90	3.78	3.30	3.36
2040303	7	3	34.83	28.83	38.44	32.83	34.43	3.24	2.68	3.57	3.05	3.20
1010630	1	6	34.92	30.22	37.45	32.93	34.74	3.25	2.81	3.48	3.06	3.23
1010221	1	1	34.99	34.17	37.91	35.73	36.35	3.25	3.18	3.52	3.32	3.38
1010427	1	1	35.00	29.93	37.32	33.30	33.95	3.25	2.78	3.47	3.09	3.16
1030620	3	4	35.23	33.42	41.63	36.59	38.16	3.27	3.11	3.87	3.40	3.55
2030255	6	5	35.24	31.44	37.01	33.81	34.64	3.28	2.92	3.44	3.14	3.22
2030244	6	5	35.25	31.43	37.00	33.78	34.65	3.28	2.92	3.44	3.14	3.22
1010413	1	6	35.35	32.29	38.68	35.16	35.81	3.29	3.00	3.60	3.27	3.33
1010423	1	1	35.35	32.29	38.68	35.16	35.81	3.29	3.00	3.60	3.27	3.33
1022026	2	6	35.36	33.02	38.55	35.31	36.27	3.29	3.07	3.58	3.28	3.37
1023018	2	1	35.41	32.30	38.65	35.05	35.89	3.29	3.00	3.59	3.26	3.34
2070719	10	4	35.48	32.20	37.49	34.40	35.10	3.30	2.99	3.48	3.20	3.26
1021044	2	1	35.50	32.37	38.74	35.14	35.98	3.30	3.01	3.60	3.27	3.34
2030263	6	5	35.52	31.71	37.29	34.08	34.91	3.30	2.95	3.47	3.17	3.24
1030820	3	4	35.57	33.68	42.38	37.04	38.66	3.31	3.13	3.94	3.44	3.59
2030241	6	5	35.57	31.75	37.32	34.10	34.97	3.31	2.95	3.47	3.17	3.25
1010222	1	1	35.71	31.39	38.90	34.83	35.46	3.32	2.92	3.61	3.24	3.30
2030252	6	5	35.73	31.93	37.50	34.30	35.13	3.32	2.97	3.49	3.19	3.26
2070613	10	4	35.80	31.85	38.30	34.57	35.35	3.33	2.96	3.56	3.21	3.29
2030217	6	5	35.81	32.83	37.59	35.01	35.41	3.33	3.05	3.49	3.25	3.29
1030616	3	4	35.82	32.39	42.44	36.93	37.60	3.33	3.01	3.94	3.43	3.49
2053017	8	2	35.84	29.54	40.06	33.64	35.28	3.33	2.75	3.72	3.13	3.28
2053012	8	2	35.84	29.54	40.06	33.64	35.28	3.33	2.75	3.72	3.13	3.28
2030249	6	5	35.84	32.02	37.59	34.37	35.24	3.33	2.98	3.49	3.19	3.28
2060319	9	2	36.01	32.28	37.55	34.48	35.35	3.35	3.00	3.49	3.20	3.29
2053026	8	2	36.07	29.51	40.17	33.61	35.25	3.35	2.74	3.73	3.12	3.28
2030276	6	5	36.15	32.35	37.92	34.72	35.55	3.36	3.01	3.52	3.23	3.30
1021020	2	1	36.29	33.73	39.55	36.14	37.14	3.37	3.13	3.68	3.36	3.45
1021008	2	1	36.29	33.73	39.55	36.14	37.14	3.37	3.13	3.68	3.36	3.45
1021016	2	1	36.29	33.73	39.55	36.14	37.14	3.37	3.13	3.68	3.36	3.45

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1021002	2	1	36.29	33.73	39.55	36.14	37.14	3.37	3.13	3.68	3.36	3.45
1021013	2	1	36.29	33.73	39.55	36.14	37.14	3.37	3.13	3.68	3.36	3.45
2030202	6	5	36.29	33.18	38.20	35.47	35.91	3.37	3.08	3.55	3.30	3.34
2030266	6	5	36.32	32.52	38.09	34.89	35.72	3.38	3.02	3.54	3.24	3.32
1030815	3	4	36.37	34.44	43.31	37.86	39.52	3.38	3.20	4.02	3.52	3.67
2070602	10	4	36.55	33.46	38.41	35.43	36.21	3.40	3.11	3.57	3.29	3.37
2092947	12	1	36.88	32.98	39.47	35.83	36.62	3.43	3.07	3.67	3.33	3.40
2070716	10	4	37.04	32.17	40.25	35.76	36.46	3.44	2.99	3.74	3.32	3.39
1010707	1	1	37.26	36.44	40.38	38.08	38.74	3.46	3.39	3.75	3.54	3.60
2030213	6	5	37.27	34.29	39.05	36.47	36.87	3.46	3.19	3.63	3.39	3.43
1010313	1	1	37.33	33.83	39.73	35.39	38.17	3.47	3.14	3.69	3.29	3.55
2030277	6	5	37.43	33.62	39.20	35.99	36.82	3.48	3.12	3.64	3.35	3.42
1030711	3	4	37.50	37.12	44.76	40.51	41.10	3.48	3.45	4.16	3.76	3.82
2040820	7	3	37.55	33.13	44.11	37.91	39.33	3.49	3.08	4.10	3.52	3.65
2030253	6	5	37.64	33.83	39.41	36.20	37.03	3.50	3.14	3.66	3.36	3.44
2070514	10	4	37.69	31.76	41.77	36.24	37.03	3.50	2.95	3.88	3.37	3.44
1022029	2	1	37.99	34.34	41.54	37.46	38.42	3.53	3.19	3.86	3.48	3.57
1022010	2	1	37.99	34.34	41.54	37.46	38.42	3.53	3.19	3.86	3.48	3.57
1022005	2	1	37.99	34.34	41.54	37.46	38.42	3.53	3.19	3.86	3.48	3.57
1022011	2	6	37.99	34.34	41.54	37.46	38.42	3.53	3.19	3.86	3.48	3.57
1022014	2	1	37.99	34.34	41.54	37.46	38.42	3.53	3.19	3.86	3.48	3.57
2070717	10	4	38.03	34.20	40.45	36.88	37.58	3.53	3.18	3.76	3.43	3.49
2040308	7	3	38.37	33.05	41.56	36.59	38.01	3.57	3.07	3.86	3.40	3.53
2070702	10	4	38.42	33.33	41.78	37.11	37.81	3.57	3.10	3.88	3.45	3.51
2060415	9	2	38.76	35.02	40.30	37.22	38.10	3.60	3.26	3.74	3.46	3.54
1022022	2	1	38.83	36.85	42.38	39.14	40.09	3.61	3.42	3.94	3.64	3.73
2030268	6	5	38.83	35.03	40.60	37.40	38.23	3.61	3.26	3.77	3.48	3.55
2010223	4	2	38.86	34.94	42.53	38.10	39.37	3.61	3.25	3.95	3.54	3.66
1021011	2	1	38.92	35.04	42.54	38.29	39.30	3.62	3.26	3.95	3.56	3.65
1021018	2	1	38.92	35.04	42.54	38.29	39.30	3.62	3.26	3.95	3.56	3.65
1021017	2	1	38.92	35.04	42.54	38.29	39.30	3.62	3.26	3.95	3.56	3.65
1021004	2	1	38.92	35.04	42.54	38.29	39.30	3.62	3.26	3.95	3.56	3.65
1010314	1	1	38.98	35.45	41.50	37.01	39.94	3.62	3.29	3.86	3.44	3.71
1030818	3	4	39.22	37.17	46.61	40.81	42.60	3.64	3.45	4.33	3.79	3.96
2070616	10	4	39.24	33.62	42.99	37.80	38.58	3.65	3.12	4.00	3.51	3.59

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
2030271	6	5	39.36	35.55	41.13	37.93	38.76	3.66	3.30	3.82	3.52	3.60
1030617	3	4	39.43	34.93	45.80	39.88	40.55	3.66	3.25	4.26	3.71	3.77
2040807	7	3	39.48	34.87	43.38	38.42	39.84	3.67	3.24	4.03	3.57	3.70
2030205	6	5	39.60	36.49	41.52	38.79	39.22	3.68	3.39	3.86	3.60	3.65
1010513	1	1	39.75	36.10	42.18	38.85	39.42	3.69	3.35	3.92	3.61	3.66
1010503	1	1	39.75	36.10	42.18	38.85	39.42	3.69	3.35	3.92	3.61	3.66
1030812	3	4	39.77	37.70	47.25	41.38	43.20	3.70	3.50	4.39	3.85	4.01
2030218	6	5	40.04	37.06	41.82	39.24	39.64	3.72	3.44	3.89	3.65	3.68
1010603	1	1	40.13	36.26	42.68	37.99	40.95	3.73	3.37	3.97	3.53	3.81
2070625	10	4	40.13	36.37	42.49	38.92	39.70	3.73	3.38	3.95	3.62	3.69
2030201	6	5	40.27	37.16	42.19	39.46	39.89	3.74	3.45	3.92	3.67	3.71
1010425	1	1	40.62	36.04	42.96	38.84	40.16	3.78	3.35	3.99	3.61	3.73
2030207	6	5	40.88	37.77	42.80	40.07	40.50	3.80	3.51	3.98	3.72	3.76
2053028	8	2	41.15	35.32	45.68	39.30	40.90	3.82	3.28	4.25	3.65	3.80
2040802	7	3	41.30	38.08	47.19	41.87	43.39	3.84	3.54	4.39	3.89	4.03
2020330	5	2	41.39	37.44	43.45	39.84	40.80	3.85	3.48	4.04	3.70	3.79
1030215	3	4	41.48	39.49	48.60	43.02	44.86	3.86	3.67	4.52	4.00	4.17
2060320	9	2	41.50	37.77	43.04	39.97	40.84	3.86	3.51	4.00	3.71	3.80
1010406	1	1	41.60	36.70	43.84	39.96	40.57	3.87	3.41	4.07	3.71	3.77
1010605	1	1	41.84	38.06	45.56	41.46	42.16	3.89	3.54	4.23	3.85	3.92
1030502	3	5	42.14	40.35	44.77	44.36	40.77	3.92	3.75	4.16	4.12	3.79
2030209	6	5	42.16	39.05	44.08	41.35	41.78	3.92	3.63	4.10	3.84	3.88
2040211	7	3	42.21	35.71	47.53	40.91	42.33	3.92	3.32	4.42	3.80	3.93
2100157	13	1	42.63	44.13	53.87	48.77	49.22	3.96	4.10	5.01	4.53	4.57
1021068	2	1	42.64	38.71	46.63	42.01	43.33	3.96	3.60	4.33	3.90	4.03
2030225	6	5	42.65	39.67	44.43	41.85	42.25	3.96	3.69	4.13	3.89	3.93
2030226	6	5	42.65	39.67	44.43	41.85	42.25	3.96	3.69	4.13	3.89	3.93
2030221	6	5	43.67	40.69	45.45	42.87	43.27	4.06	3.78	4.22	3.98	4.02
2053023	8	2	43.89	36.47	48.76	41.24	43.15	4.08	3.39	4.53	3.83	4.01
2070603	10	4	44.33	40.79	47.82	43.80	44.58	4.12	3.79	4.44	4.07	4.14
2040202	7	3	44.60	43.18	51.69	46.73	48.15	4.14	4.01	4.80	4.34	4.47
1010804	1	1	44.61	41.05	46.24	43.10	44.19	4.15	3.82	4.30	4.01	4.11
1010803	1	1	44.61	41.05	46.24	43.10	44.19	4.15	3.82	4.30	4.01	4.11
1031013	3	4	44.62	42.48	52.28	46.26	48.25	4.15	3.95	4.86	4.30	4.48
2070708	10	4	44.73	41.45	48.08	44.32	45.02	4.16	3.85	4.47	4.12	4.18

WS	BLDG	LTGSYS	Watts per Square Meter: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	Watts per Square Foot: LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
2070718	10	4	44.91	41.65	48.19	44.47	45.17	4.17	3.87	4.48	4.13	4.20
2053020	8	2	45.09	36.89	50.21	42.02	44.06	4.19	3.43	4.67	3.90	4.10
1010712	1	1	45.20	43.61	47.56	45.25	45.91	4.20	4.05	4.42	4.21	4.27
1030318	3	4	45.21	43.03	53.03	46.89	48.90	4.20	4.00	4.93	4.36	4.54
1030320	3	4	45.21	43.03	53.03	46.89	48.90	4.20	4.00	4.93	4.36	4.54
1030321	3	4	45.21	43.03	53.03	46.89	48.90	4.20	4.00	4.93	4.36	4.54
2060420	9	2	45.35	42.16	47.43	44.36	45.24	4.21	3.92	4.41	4.12	4.20
1030212	3	4	45.36	43.17	52.73	46.84	48.84	4.22	4.01	4.90	4.35	4.54
1030920	3	4	46.07	43.73	54.41	47.87	49.95	4.28	4.06	5.06	4.45	4.64
1030417	3	5	46.07	44.03	48.40	47.81	44.63	4.28	4.09	4.50	4.44	4.15
2053013	8	2	46.30	41.49	52.01	45.60	47.24	4.30	3.86	4.83	4.24	4.39
2092979	12	1	46.64	42.57	49.84	45.81	46.60	4.33	3.96	4.63	4.26	4.33
2070730	10	0	46.98	43.25	49.34	45.85	46.55	4.37	4.02	4.59	4.26	4.33
1030613	3	4	47.20	44.86	55.48	48.96	51.07	4.39	4.17	5.16	4.55	4.75
1030618	3	4	47.20	44.86	55.48	48.96	51.07	4.39	4.17	5.16	4.55	4.75
1030612	3	4	47.20	44.86	55.48	48.96	51.07	4.39	4.17	5.16	4.55	4.75
1030610	3	4	47.20	44.86	55.48	48.96	51.07	4.39	4.17	5.16	4.55	4.75
2100156	13	1	47.44	48.93	58.67	53.58	54.03	4.41	4.55	5.45	4.98	5.02
2100170	13	1	47.44	48.93	58.67	53.58	54.03	4.41	4.55	5.45	4.98	5.02
1030701	3	0	47.71	46.05	49.94	47.99	47.99	4.43	4.28	4.64	4.46	4.46
1030817	3	4	48.34	45.88	57.16	50.23	52.44	4.49	4.26	5.31	4.67	4.87
1030816	3	4	48.34	45.88	57.16	50.23	52.44	4.49	4.26	5.31	4.67	4.87
2100109	13	1	48.63	49.03	54.12	51.31	51.84	4.52	4.56	5.03	4.77	4.82
2060303	9	2	48.64	44.91	50.18	47.10	47.98	4.52	4.17	4.66	4.38	4.46
1010617	1	1	50.21	44.75	54.94	49.50	50.19	4.67	4.16	5.11	4.60	4.66
2020101	5	0	51.19	51.19	51.19	51.19	51.19	4.76	4.76	4.76	4.76	4.76
2070711	10	4	51.37	50.18	54.66	51.97	52.67	4.77	4.66	5.08	4.83	4.90
2053027	8	2	54.31	44.27	59.85	50.42	52.88	5.05	4.11	5.56	4.69	4.91
2070726	10	0	55.06	52.91	57.39	54.70	55.40	5.12	4.92	5.33	5.08	5.15
1030418	3	5	55.06	52.82	58.03	56.59	54.25	5.12	4.91	5.39	5.26	5.04
2070728	10	0	56.26	54.13	58.61	55.92	56.62	5.23	5.03	5.45	5.20	5.26
1030213	3	4	56.96	54.81	64.62	58.61	60.56	5.29	5.09	6.01	5.45	5.63
2040312	7	3	58.26	48.42	64.56	55.14	57.84	5.41	4.50	6.00	5.13	5.38
2070722	10	4	59.18	55.43	61.55	58.04	58.74	5.50	5.15	5.72	5.39	5.46
2010220	4	2	69.78	68.20	72.00	69.78	70.41	6.49	6.34	6.69	6.49	6.54

			Watts per Square Meter:					Watts per Square Foot:				
WS	BLDG	LTGSYS	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL	LPD	LPDES	LPDSTD	LPDELSB	LPDEBSL
1010634	1	1	71.88	67.81	75.04	69.54	73.31	6.68	6.30	6.97	6.46	6.81
1010629	1	0	79.69	73.31	81.99	77.07	78.22	7.41	6.81	7.62	7.16	7.27

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☐ Document describes a computer program; SF-185, FIPS Software Summary, is attached.

11. ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here)

This document reports on an exercise in archiving in situ lighting power densities for occupied office lighting environments. Drawing from a previous study where field surveys of existing lighting installations were recorded, the present study extends the data to include referencable lighting power densities for the original conditions. In addition, theoretical alternate ANSI lighting power densities are computed assuming one-for-one replacement with either energy saving or standard lamps and ballasts.

12. KEY WORDS (Six to twelve entries; alphabetical order; capitalize only proper names; and separate key words by semicolons)

Lighting power density; unit power density; energy performance; lighting energy standards; occupant satisfaction

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