

New Construction Exterior Space Lighting Zones

January 10, 2018



Purpose



The purpose of this document is to provide guidance on the selection of lighting zones for outdoor lighting



New Construction Exterior Space Types

Facility Type	Lighting Power Density (W/ft ²)			
	Zone 1	Zone 2	Zone 3	Zone 4
Uncovered Parking: Parking Areas and Drives	0.04	0.06	0.10	0.13
Building Grounds: Walkways ≥ 10 ft. wide, Plaza Areas, and Special Feature Areas	0.14	0.14	0.16	0.20
Building Grounds: Stairways	0.75	1.00	1.00	1.00
Building Grounds: Pedestrian Tunnels	0.15	0.15	0.20	0.30
Building Grounds: Landscaping (ASHRAE 90.1-2013 only)	0.04	0.05	0.05	0.05
Building Entrances and Exits: Entry Canopies	0.25	0.25	0.40	0.40
Building Entrances, Exits, and Loading Docks: Loading Docks (ASHRAE 90.1-2013 specific)	0.50	0.50	0.50	0.50
Sales Canopies: Free-standing and Attached	0.60	0.60	0.80	1.00
Outdoor Sales: Open Areas	0.25	0.25	0.50	0.70
Building Facades	--	0.075	0.113	0.150
Entrances and Gatehouse Inspection Stations	0.75	0.75	0.75	0.75
Loading Areas for Emergency Vehicles	0.50	0.50	0.50	0.50

Table 2 3: New Construction LPDs for Exterior Space Types

Source per *Lighting Survey Form*: IECC 2015 Table C405.5.2(2) and ANSI/ASHRAE/IESNA Standard 90.1-2013 Table 9.4.2-2.

Volume 3, Section 2.1, of the Texas Technical Reference Manual provides guidance on calculation of savings from new construction exterior lighting

^[1] In June 2016, the TX Comptroller issued a state certification letter adopting ASHRAE 90.1-2013 as the energy code for state buildings while the commercial building code remains IECC 2015. State-funded buildings are required to submit SECO compliance certificates as part of the NC/Renovation process.

More details can be found at the Comptroller website: <https://comptroller.texas.gov/programs/seco/code/state-funded.php>.

^[2] Ibid.

^[3] ASHRAE 90.1-2013 reflects a higher baseline. The TRM specifies the higher, more conservative, baseline in order to allow the same LPD to apply to all buildings, regardless of whether they are state-funded.

Lighting Zone Descriptions

Zone	Ambient Illumination	Statewide Default Location
LZ1	Dark	Government designated parks, recreation areas, and wildlife preserves. Those that are wholly contained within a higher lighting zone may be considered by the local government as part of that lighting zone. A government designated park, recreation area, wildlife preserve, or portions thereof, can be designated as LZ2 or LZ3 if they are contained within such a zone.
LZ2	Low	Rural areas, as defined by the 2010 U.S. Census.
LZ3	Medium	Urban areas, as defined by the 2010 U.S. Census.
LZ4	High	None

80% of Texas households are in urban areas

Procedure for Determining Lighting Zone

U.S. Department of Commerce
United States Census Bureau

AMERICAN FactFinder

MAIN COMMUNITY FACTS GUIDED SEARCH **ADVANCED SEARCH** DOWNLOAD CENTER

Search - Use the options on the left (topics, geographies, ...) to narrow your search results

Your Selections
'Your Selections' is empty
load search | save search

Search using the options below:

- Topics (age, income, year, dataset, ...)
- Geographies (states, counties, places, ...)**
- Race and Ethnic Groups (race, ancestry, tribe)
- Industry Codes (NAICS industry, ...)
- EEO Occupation Codes (executives, analysts, ...)

To search for tables and other files in American FactFinder:

- 1 Enter search terms and an optional geography and click **GO**

topic or table name state, county or place (optional) **GO** ?

topics race/ancestry industries occupations

-- or --

Select from **Topics, Race and Ethnic Groups, Industry Codes, EEO Occupation Codes.**

- these are added to 'Your Selections'
- the Search Results are updated

- 2 Next, select **Geographies** (states, counties, cities, towns, etc.)

- these are added to 'Your Selections'
- the Search Results are updated

- 3 Select one or more Search Results and click **View**

- Open a browser and paste the attached link

<http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t#none>

- To determine if the property is in either a rural or urban census tract, do the following:
- Click on the “Geographies” box in the left hand column. This will expand the box with 4 tabs at the top.

Procedure for Determining Lighting Zone

U.S. Department of Commerce
United States Census Bureau

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MAIN COMMUNITY FACTS GUIDED SEARCH **ADVANCED SEARCH** DOWNLOAD CENTER

Search - Use the options on the left (topics, geographies, ...) to narrow your search results

Your Selections
"Your Selections" is empty
load search | save search

To search for tables and other files in American FactFinder:
1 Enter search terms and an optional geography and click GO

Select Geographies
List Name **Address** Map

Enter a street address, city and state, or a street address and ZIP code. Click 'Go'. ?

Note: address search will use the latest available address data beginning with 2014 and working backwards, based on the contents of Your Set

street address city state zip
GO

2 Next, select **Geographies** (states, counties, cities, towns, etc.)

- these are added to 'Your Selections'
- the Search Results are updated

3 Select one or more Search Results and click **View**

Search using the options below:

Topics
(age, income, year, dataset, ...)

Geographies
(states, counties, places, ...)

Race and Ethnic Groups
(race, ancestry, tribe)

Industry Codes
(NAICS industry, ...)

EEO Occupation Codes
(executives, analysts, ...)

- Click on the “Address” tab at the top of the expanded box.
- Type in the address of the property.
- Select the “Go” button to begin the search.

Procedure for Determining Lighting Zone

Select Geographies. Use the options on the left (topics, geographies, ...) to narrow your search results

List Name Address Map

Enter a street address, city and state, or a street address and ZIP code. Click 'Go'. ?

Note: address search will use the latest available address data beginning with 2014 and working backwards, based on the contents of Your Selections.

street address city state zip
1616 Woodall Rodgers Dallas Texas 75202 GO

Geographies containing 1616 Woodall Rodgers Fwy, DALLAS, TX, 75202:
Select geographies to add to Your Selections

Geography Results:

Geography Name	Geography Type	Geography Code	About
Texas	State	040	?
Dallas County, Texas	County	050	?
Northeast Dallas CCD, Dallas County, Texas	County Subdivision	060	?
Block 1010, Block Group 1, Census Tract 21, Dallas County, Texas	Block	100	?
Census Tract 21, Dallas County, Texas	Census Tract	140	?
Block Group 1, Census Tract 21, Dallas County, Texas	Block Group within Census Tract	150	?
Dallas city, Texas	Place within State	160	?
Dallas-Fort Worth-Arlington, TX Metro Area	Metro/Micro Statistical Area	310	?
Dallas-Piano-Irving, TX Metro Division, Dallas-Fort Worth-Arlington, TX Metro Area	Metro Division within Metro Statistical Area	314	?
Dallas-Fort Worth, TX CMSA	MSA/CMSA	380	?
Dallas, TX PMSA, Dallas-Fort Worth, TX CMSA	PMSA within CMSA	385	?
Dallas-Fort Worth-Arlington, TX Urbanized Area (2010)	Urban Area	400	?
Congressional District 30 (114th Congress), Texas	Congressional District	500	?
State Senate District 23 (2014), Texas	State Legislative District (Upper)	610	?
State House District 108 (2014), Texas	State Legislative District (Lower)	620	?
Voting District 3208, Dallas County, Texas	Voting District/Remainder	700	?
Dallas City (Downtown)-North of I-30 PUMA, Texas	Public Use Microdata Area (PUMA)	795	?

- Look for Code 400
- If there is a Code 400 present, the area is classified as “Urban”, which is Lighting Zone 3

Procedure for Determining Lighting Zone

Select Geographies Use the options on the left (topics, geographies, ...) to narrow your search results

List Name Address Map

Enter a street address, city and state, or a street address and ZIP code. Click 'Go'. ?

Note: address search will use the latest available address data beginning with 2014 and working backwards, based on the contents of Your Selections.

street address city state zip
 212 Rattlesnake Rd Riesel Texas 76682 GO

Geographies containing 212 Rattlesnake Rd, RIESEL, TX, 76682:
 Select geographies to add to Your Selections

Geography Results:

Geography Name	Geography Type	Geography Code	About
Texas	State	040	?
McLennan County, Texas	County	050	?
Mart CCD, McLennan County, Texas	County Subdivision	060	?
Block 1123, Block Group 1, Census Tract 36.02, McLennan County, Texas	Block	100	?
Census Tract 36.02, McLennan County, Texas	Census Tract	140	?
Block Group 1, Census Tract 36.02, McLennan County, Texas	Block Group within Census Tract	150	?
Riesel city, Texas	Place within State	160	?
Waco, TX Metro Area	Metro/Micro Statistical Area	310	?
Waco, TX MSA	MSA/CMSA	380	?
Congressional District 17 (114th Congress), Texas	Congressional District	500	?
State Senate District 22 (2014), Texas	State Legislative District (Upper)	610	?
State House District 56 (2014), Texas	State Legislative District (Lower)	620	?
Voting District 0073, McLennan County, Texas	Voting District/Remainder	700	?
Heart of Texas COG—McLennan County—Waco (Outer), Hewitt & Robinson Cities PUMA, Texas	Public Use Microdata Area (PUMA)	795	?
ZCTA5 76682	5-Digit ZCTA	860	?
ZIP 76682 (Riesel, TX)	5-Digit ZIP Code	861	?
Remainder of Texas, Texas	School District (Elementary)/Remainder	950	?
Remainder of Texas, Texas	School District (Secondary)/Remainder	960	?

- If no Code 400 is present, the area is classified as “Rural”, which is Lighting Zone 2

Screen shots from the US Census Bureau website which show the address and geography type and code will be required to determine the correct zone

Select Geographies Use the options on the left (topics, geographies, ...) to narrow your search results

List | **Name** | **Address** | **Map**

Enter a street address, city and state, or a street address and ZIP code. Click 'Go'. [?](#)

Note: address search will use the latest available address data beginning with 2014 and working backwards, based on the contents of Your Selections.

street address: city: state: zip:

Geographies containing **4350 Fossil Creek Blvd, FT WORTH, TX, 76137:**
Select geographies to add to Your Selections

Geography Results:

Geography Name	Geography Type	Geography Code	About
Texas	State	040	i
Tarrant County, Texas	County	050	i
Fort Worth CCD, Tarrant County, Texas	County Subdivision	060	i
Block 2038, Block Group 2, Census Tract 1050.07, Tarrant County, Texas	Block	100	i
Census Tract 1050.07, Tarrant County, Texas	Census Tract	140	i
Block Group 2, Census Tract 1050.07, Tarrant County, Texas	Block Group within Census Tract	150	i
Fort Worth city, Texas	Place within State	160	i
Dallas-Fort Worth-Arlington, TX Metro Area	Metro/Micro Statistical Area	310	i
Fort Worth-Arlington, TX Metro Division; Dallas-Fort Worth-Arlington, TX Metro Area	Metro Division within Metro Statistical Area	314	i
Dallas-Fort Worth, TX CMSA	MSA/CMSA	380	i
Fort Worth-Arlington, TX PMSA; Dallas-Fort Worth, TX CMSA	PMSA within CMSA	385	i
Dallas-Fort Worth-Arlington, TX Urbanized Area (2010)	Urban Area	400	i
Congressional District 12 (114th Congress), Texas	Congressional District	500	i
State Senate District 9 (2014), Texas	State Legislative District (Upper)	610	i
State House District 93 (2014), Texas	State Legislative District (Lower)	620	i
Voting District 4250, Tarrant County, Texas	Voting District/Remainder	700	i
Fort Worth City (North Central) & Haltom City	Public Use Microdata Area (PUMA)	795	i

Questions

If you have any questions regarding selection of lighting zones, please contact your Program Manager