

2009 Lighting Rebate

Instructions for completing the SCHOOL / NE&C LIGHTING Rebate Worksheet

General Note:

1. This application is for new high efficiency lighting fixtures, systems and controls.
2. All fixture specifications including photometric tables must be submitted and reviewed by the utility to verify compliance with technical requirements.
3. Invoices will be required for payment of rebates

Eligibility Requirements:

4. Each lighting efficiency measure must meet the efficiency and technical specifications found in Tables A and B. Fixture efficiency ratings can be found on fixture photometric reports, and is the total % lamp lumen output in the 0 to 90 degree range for direct fixtures and 0 to 180 degree range for direct/indirect found in the Zonal Lumen Summary
5. Lighting efficiency measures are intended to reduce the lighting system's energy demand and consumption while delivering equal or improved light level and quality. All lighting systems shall be in accordance with IES recommended indoor lighting guidelines.
6. Each fixture or system must operate a minimum of 1000 hours of use annually.
7. When replacing ballasts, follow manufacturer's installation and wiring guidelines
8. Control measure minimum watts are the average total watts controlled per controller.
9. The rebate offer is not valid unless signed and dated by the Utility Representative. The Customer accepts the Utilities rebate offer and agrees to the Terms and Conditions of the Utility by signing in the pre-approval offer block.
10. Outdoor lighting and lower wattage indoor lighting systems will be considered as a custom measure & must pass benefit cost test to be eligible for an incentive.

Proposed Lighting System - Pre-Installation Requirements

11. Review eligibility requirements.
12. Review specifications for the proposed equipment to confirm it meets the minimum efficiency requirements, if available.
13. Complete the lighting or lighting controls rebate worksheet as described below.
14. Fill out a separate line for each unique combination of proposed Measure Code, Fixture Code (see Table E) and hours of operation.
15. Fill out a separate line for each lighting control measure including control description, quantity of fixtures controlled, and hours of reduction for each device proposed (refer to Table A for code and rebate amount).
16. Hours of operation are the estimated annual hours that the particular fixture(s) actually operate. Try to be as specific and accurate as possible,. Note that fixture operating hours are not necessarily the same as the facility operating hours.
17. Add up the **Total Rebate** columns for each of the two tables. The Rebate Total boxes cannot exceed the total equipment costs.
18. Add the **Lighting Total** and the **Control Total** in the **Grand Total** box. The front of the application is to be filled out by the utility.

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Explanation of how to fill out table:

NE&C LIGHTING REBATE WORKSHEET							
Item	Measure Code	Fixture Code	Fixture Description	Quantity of Fixtures (A)	Annual Hours of Operation	Per Unit Rebate \$ (B)	Total Rebate \$
<i>Ex.</i>	30 A	3F32EEE	3L4T8EE/EEE'	34	4,200	\$15+\$10 = \$25	\$850
	<i>See Table D</i>	<i>See Table D</i>	<i>See Table D</i>	<i>Amount of fixtures to be installed</i>	<i>From Customer or Utility Representative</i>	<i>See Table A</i>	<i>A x B</i>

Explanation of how to fill out table:

LIGHTING CONTROLS REBATE WORKSHEET								
Item	Lighting Control Measure Code	Lighting Control Description	Quantity (A)	Lighting Fixture Code	Quantity of Fixtures	Annual Hours of Reduction	Per Unit Rebate \$ (B)	Total Rebate \$
<i>Ex.</i>	61	Occ. Sensor	6	3F32EEE	12	1,750	\$70	\$420
	<i>See Table A</i>	<i>See Table A</i>	<i>Amount of controls to be installed</i>	<i>New fixtures that will be controlled – Table D</i>	<i>Quantity of fixtures being controlled</i>	<i>From Customer or Utility Representative</i>	<i>See Table A</i>	<i>A x B</i>

Post-Installation

Utility Representative must verify that:

1. The new energy efficient lighting fixtures, systems and controls types have been installed and are energized.
2. The lighting fixtures, systems and controls match the manufacturer's information represented on the rebate application. If the lighting fixtures, systems and controls have changed from what was approved for the initial rebate offer, the substituted equipment specifications must be submitted and reviewed by the utility to verify compliance with technical requirements and approved before a rebate is considered.
3. The invoice or proof of payment has been submitted.
4. The Utility Representative & Customer have signed / dated the post installation inspection block on the rebate form.

Measure Specific Documentation Requirements

1. All lighting fixtures and controls require an invoice showing fixture manufacturer, model, and number of lamps, ballast specifications (if applicable), fixture quantities and costs.
2. Code 30 - Verify installed fixture(s) specifications meet the program criteria.
3. Code 32 - Verify installed fixture(s) specifications meet the program criteria.
4. Code 33 – Provide documentation showing that the lighting system meets the Code 33 Guidelines
5. Code 41 and 42 - Provide documentation showing fixture interior surface meets minimum reflectivity of 87%.
6. Code 21, 22, 23 - Lamps must be Compact Fluorescent Lamps (CFL) and ballasts must be magnetic with >90% Power Factor (PF) or electronic with <33% Total Harmonic Distortion (THD).

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Fluorescent Ballasts and Installation Guidelines

For customers participating in New Hampshire's lighting rebate programs, the following equipment specifications and installation guidelines are recommended. These guidelines are not requirements for receiving rebates, but have been compiled to help inform our customers so they achieve the energy savings calculated under our programs and maintain quality installations.

1. Must meet all applicable current State and Federal efficiency standards.
2. Total harmonic distortion (THD) of 20% or less.
3. UL Listed, National Electrical Code (NEC) Section 410.
4. Power factor greater than 90%.
5. Ballast Crest Factor shall not exceed 1.7.
6. For outside or cold weather operation ballasts with a 0 degree F rating should be used. Indoor operation ballast is typically rated for 50 degree F operation.
7. Ballast operating frequency should be above 20,000 Hz.
8. Ballast shall meet FCC requirements for RFI or EMI interference in commercial and industrial applications.
9. Ballasts should be installed with the appropriate lamp size and number of lamps that the ballast was designed for to maintain the above specifications and project savings.

Examples:

- a. A two (2) lamp fixture should have a 2 lamp ballast installed, not a 3 lamp ballast. A three (3) lamp ballast can power 2 lamps; but will draw more energy, could have higher harmonic distortion, and may adversely affect lamp life.
 - b. Ballasts designed to power 4', 3' or 2' T8's are most efficient when powering the 4' T8's. That ballast will use more energy and have higher harmonics when used with 3' or 2' lamps rather than a ballast designed specifically for 3' or 2' lamps.
10. Manufacturer should provide a minimum 3 year warranty, or preferably a 5 year warranty. Many manufacturers will also provide a labor cost reimbursement, for defective ballasts requiring replacement while under warranty.

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Lighting Fixtures and Systems - Efficiency Improvement Opportunities

The following table lists the rebates available for energy efficient lighting improvements.

Table A: NE&C Lighting System Rebates ** Note 2009 is the last year for standard T8 systems incentives. **

Measure	Measure Code	Description	Per Fixture	
			Rebate Amount	
Fluorescent Fixtures	10	Purchase new fixtures with High Performance (HP) T8 lamps and HP ballast	\$12	
Tandem Wired Lamp/Ballast Retrofit	11	Purchase new fixture pairs with new HP T8 lamps in each tandem wired to 1 HP ballast	\$25	
High Efficiency Fluorescent Fixtures	30 ♦	Recessed (or surface mounted) Troffer Fixtures	\$15	
	32 ♦	Recessed (or surface mounted) Low Glare Troffer Fixtures	\$35	
	33 ♦	Indirect (suspended) Low Glare Fixtures	\$35	
Fluorescent Fixtures With Reflectors	41 ♦	4 ft. Non-recessed/Open Fixtures	\$25	
	42 ♦	8 ft. Non-recessed/Open Fixtures	\$30	
Compact Fluorescent Fixtures	21	Hard-wired Compact Fluorescent Fixtures	\$25	
	23	Dimmable Compact Fluorescent Fixtures	\$50	
HID Fixtures	52	New Metal Halide Pulse Start Fixtures	\$20	
High Intensity Fluorescent Fixtures	56 ♦	New > 125 w & < 220 w low bay fluorescent fixtures	\$40	
	57 ♦	New => 220 w high bay fluorescent fixtures	\$70	
Specialty Lighting Fixtures	70	New low wattage metal halide fixtures for retail or display lighting	\$110	
Adder for High Performance T8 Lamps & Ballasts	xx ♦	Upgrade fixtures from standard T8 lamps & ballasts to "High Performance" (HP) T8 lamps & HP ballast	Add \$10	
♦ These items are also eligible for an additional "High Performance" T 8 lamp and ballast rebate under code " xx A "			Rebate Amount	Min. Controlled Watts
Controls For Fluorescent Systems (limit - one control incentive per measure)	61	Remote-Mount, Daylight or Occ. Sensor (per control)	\$70	138
	62	Daylight Dimming System (DDS-FL) (per fixture)	\$45	35
	63	Occupancy Controlled High-Low System (per fixture)	\$45	35
	64	Wall Mount & Fixture Occupancy Sensors (per control)	\$30	84
Controls For H.I.D. Lighting Systems	66	Occupancy Controlled High-Low System (per fixture)	\$115	153
	67	Daylight Dimming System (DDS-HID) (per fixture)	\$115	88

*** Sensor Note: Frequent start/stop cycling of lamps on instant start ballasts can significantly shorten lamp life. Program rapid start ballasts are recommend in fluorescent T8 fixtures to minimize potential lamp life reduction and maximize switching cycles when occupancy sensors are used ***

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Table B: Eligibility Requirements for Interior Fixtures

Code 10 Fixtures with HP T 8 lamps & ballast	Each new fixture is composed of a High Performance (HP) ballast and 1 to 4 HP lamps. Tandem wired HP fixtures are only eligible for one rebate. Rebate will be applied towards new fixtures up to 8'. There is no rebate for fixtures with standard T8 lamps and ballast. Applies to T5 systems also
Code 11 Tandem Fixtures	This rebate applies to a pair of tandem-wired fixtures with HP lamps in each wired to one HP ballast. Only one rebate for a pair of fixtures or a group of 4 single lamp fixtures. There is no rebate for fixtures with standard T8 lamps and ballast.
Code 30 High Efficiency Fluorescent Fixtures	Fixtures must be recessed or surface mounted troffer type. Overall fixture efficiency must exceed 83% for prismatic lensed fixtures, 75% for parabolic lensed fixtures, 70% for 2x2 parabolic or 70% for 2x2 and 2x4 indirect fixtures. Wrap, strip or industrial hooded fixtures are not eligible. Three lamp fixtures must have Low Power ballasts or Super T-8's. Each fixture is composed of a ballast and 1 to 3 lamps Applies to T5 systems also. Upgrade fixtures to qualifying High Performance (HP) T8 lamps & ballast for an additional \$10 per ballast. (Product Code 30 A).
Code 32 Low Glare High Efficiency Fluorescent Fixtures	Parabolic type fixtures must exceed 64% fixture efficiency. Low glare parabolic fixtures require a 4" or 5" deep cell louver. Low glare non-parabolic fixtures must exceed 83% efficiency. Each fixture is composed of a ballast and 1,2,3, or 4 lamps. Each new fixture must be designed to meet IES Low Glare Standard RP-1. Applies to T5 systems also. Upgrade fixtures to qualifying HP T8 lamps & ballast for an additional \$10 per ballast. (Product Code 32 A)
Code 33 Indirect Low Glare High Efficiency Fluorescent Fixtures	Each fixture shall be a 4-foot section containing not more than 3 lamps. Each fixture must exceed 80% efficiency. Systems must be designed and installed to meet IES Standard RP-1 maximum criteria (not to exceed 10:1 brightness variation on the ceiling plane, and be installed below ceiling with a minimum surface reflectivity of 80%). Recessed fixtures are not eligible. Documentation is required in accordance with the "Code 33 Guidelines". Fixtures shall be pendent or suspension mounted. Upgrade fixtures to qualifying HP T8 lamps & ballast for an additional \$10 per ballast. (Product Code 33 A)
Code 41, 42 Industrial Fluorescent Fixtures With Reflectors	Each must include a new custom reflector or silver or aluminum finish. Reflectors shall have a minimum reflectivity of 87% and have no greater than 20% uplight (with light colored ceiling). All open type fixtures must use T8 or T5 lamps & ballasts. Wrap around type fixtures with optional internal silver or aluminum reflectors may be eligible. Optional reflectors must improve fixture efficiency and minimize uplight. Open reflector type fixtures should not be used in dusty, dirty or other hazardous industrial environments. Applies to T5 systems also Upgrade fixtures to qualifying HP T8 lamps & ballast for an additional \$10 per ballast. (Product Code xx A)
Code 21, 23 Compact Fluorescent Fixtures	To be eligible for rebates, all fixtures must have high power factor (90% or higher) magnetic ballasts or eligible electronic ballasts. Each fixture must contain a new lamp(s) and a new ballast. This rebate is only available to customers <100 kW. Compact fluorescent lamps/ballasts must be <33% total harmonic distortion. The following are not eligible: retrofit kits, screw-in adapters, and exit signs.
Code 52 HID Fixtures	All interior fixtures must include a matched Metal Halide Pulse Start (MHPS) lamp and ballast installed per the manufacturer's specifications and applicable codes. This rebate applies to an entirely new interior Pulse Start Fixtures with lamps greater than 150 watts w/linear ballasts or 250 watts w/Constant Watt Autotransformer ballasts.
Code 56 High Intensity Fluorescent (HIF) only	Low bay interior fixtures must have T8 lamps with High Ballast Factor ballast or T-5's meeting a min. fixture efficiency of 88% unless the application has a special lens or fixture requirement. Fixtures must have minimum wattage of 125 w, a maximum of 219 w & recommended installation >16 feet above the floor. Use Code 56 A when HP T8 lamps and HP ballasts are installed
Code 57	High bay interior fixtures must have T8 lamps with High Ballast Factor ballast or T-5's meeting a min. fixture efficiency of 88% unless the application has a special lens or fixture requirement. Minimum fixture watts of 220 watts & recommended installation >20 feet above the floor. Use Code 57 A when HP T8 lamps and HP ballasts are installed
Code 70 MH Specialty Fixtures	Fixtures may be track, recessed or surface mounted and used for high quality display type lighting. Fixtures range from 20-100 watts
xx A - High Performance (HP) T 8 Lamps/ Ballasts Fixtures ♦	This measure is for new High Performance" (HP) T 8 lamps & HP ballasts. Thirty Two (32) w HP T 8 lamps / ballast lighting systems reference lighting systems listed on CEE website (www.CEE1.org). Thirty (30) w HP T8 lamps are listed on utilities websites & when used in conjunction with HP T8 ballast are eligible for HP T8 rebates. Lighting systems shall be in accordance with IES Indoor Recommended Guidelines. Use an " A " to identify HP lamps and HP ballast lighting systems.
Code 61	Comply with manufacturer's coverage recommendations On / Off controls with no manual "ON" overrides are eligible. Switch plate mounted units are not eligible.
Controls For Fluorescent Systems	62 Must have continuous dimming or adjust to a minimum of 4 levels. No ON/OFF.
	63 Ballast must be automatically controlled based on occupancy. Systems with manual "ON" or override switches are not eligible. Power consumption in low mode must not exceed 60%.
	64 Not eligible if installed in restrooms, locker rooms, stairwells or rooms greater than 250 square feet.
Code 66, 67 Controls for HID Lighting Systems	Ballasts must be automatically controlled based on occupancy. Systems with manual "ON" or override switches are not eligible.

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Table E: New Fixture Codes

Measure Code 10 & 11 – Re-lamp/Re-ballast Fluorescent Fixtures

Note: * = Codes to be used for Code 11 Rebate ◆ = Codes to be used for 30 & 32 watt “HP T8’s”

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1F17SSE	1L2'T8/ELIG	17	2F59SSE	2L8'T8/ELIG	109
1F25SSE	1L3'T8/ELIG	24	2F59SSL	2L8' T8/ELIG LBF	100
1F25EEE	1L4'T8EE/ELEE	22	2F72HSE	2L6'T8 HO/ELIG	160
1F25EEL	1L4'T8EE/ELEE LBF	20	2F80SSE	2L8'T8 HO/ELIG	160
1F25EEH	1L4'T8EE/ELEE HBF	30	3F17SSE	3L2' T8/ELIG	53
1F28EEE	1L4'T8EE/ELEE	24	3F25SSE	3L3' T8/ELIG	68
1F28EEL	1L4'T8EE/ELEE LBF	22	3F25EEE	3L4'T8EE/ELEE	67
1F28EEH	1L4'T8EE/ELEE HBF	33	3F25EEL	3L4'T8EE/ELEE LBF	56
1F30EEE ◆	1L4'T8EE/ELEE	27	3F25EEH	3L4'T8EE/ELEE HBF	87
1F30EEL ◆	1L4'T8EE/ELEE LBF	24	3F28EEE	3L4'T8EE/ELEE	72
1F30EEH ◆	1L4'T8EE/ELEE HBF	37	3F28EEL	3L4'T8EE/ELEE LBF	62
1F32EEE ◆	1L4' T8EE/ELEE	28	3F28EEH	3L4'T8EE/ELEE HBF	96
1F32EEL ◆	1L4' T8EE/ELEE LBF	25	3F30EEE ◆	3L4'T8EE/ELEE	81
1F32EEH ◆	1L4' T8EE/ELEE HBF	38	3F30EEL ◆	3L4'T8EE/ELEE LBF	69
1F32SSE	1L4' T8/ELIG	30	3F30EEH ◆	3L4'T8EE/ELEE HBF	106
1F32SSL	1L4 T8/ELIG LBF	26	3F32EEE ◆	3L4' T8EE/ELEE	82
1F40BXE	1L2' F40BX/ELIG	46	3F32EEL ◆	3L4' T8EE/ELEE LBF	72
1F50BXE	1L2' F50BX/ELIG	54	3F32EEH◆	3L4' T8EE/ELEE HBF	111
1F59SSE	1L8' T8/ELIG	60	3F32SSE	3L4' T8/ELIG	88
1F80SSE	1L8'T8 HO/ELIG	85	3F32SSL	3L4 T8/ELIG LBF	76
2F17SSE	2L2' T8/ELIG	37	3F32SSH	3L4 T8/ELIG HBF	112
2F25SSE	2L3' T8/ELIG	47	3F40BXE	3L2' F40BX/ELIG	102
2F25EEE	2L4'T8EE/ELEE	43	3F40TSE	3L5'T8/ELIG	106
2F25EEL	2L4'T8EE/ELEE LBF	38	4F17SSE *	4L2' T8/ELIG	62
2F25EEH	2L4'T8EE/ELEE HBF	59	4F25SSE *	4L3' T8/ELIG	88
2F28EEE	2L4'T8EE/ELEE	49	4F25EEE *	4L4'T8EE/ELEE	86
2F28EEL	2L4'T8EE/ELEE LBF	42	4F25EEL *	4L4'T8EE/ELEE LBF	75
2F28EEH	2L4'T8EE/ELEE HBF	65	4F25EEH *	4L4'T8EE/ELEE HBF	112
2F30EEE ◆	2L4'T8EE/ELEE	53	4F28EEE *	4L4'T8EE/ELEE	94
2F30EEL ◆	2L4'T8EE/ELEE LBF	46	4F28EEL *	4L4'T8EE/ELEE LBF	83
2F30EEH ◆	2L4'T8EE/ELEE HBF	72	4F28EEH *	4L4'T8EE/ELEE HBF	126
2F32EEE ◆	2L4' T8EE/ELEE	55	4F30EEE◆*	4L4'T8EE/ELEE	104
2F32EEL ◆	2L4' T8EE/ELEE LBF	48	4F30EEL◆*	4L4'T8EE/ELEE LBF	92
2F32EEH ◆	2L4' T8EE/ELEE HBF	74	4F30EEH◆*	4L4'T8EE/ELEE HBF	145
2F32SSE	2L4' T8/ELIG	60	4F32EEE◆*	4L4' T8EE/ELEE	108
2F32SSL	2L4 T8/ELIG LBF	52	4F32EEL◆*	4L4' T8EE/ELEE LBF	96
2F32SSH	2L4 T8/ELIG HBF	78	4F32EEH◆*	4L4' T8EE/ELEE HBF	148
2F40BXE	2L2' F40BX/ELIG	72	4F32SSE *	4L4' T8/ELIG	112
2F40TSE	2L5'T8/ELIG	68	4F32SSL *	4L4' T8/ELIG LBF	98
2F50BXE	2L2' F50BX/ELIG	108	4F32SSH *	4L4 T8/ELIG HBF	156
2F54HSE	2L4' T5 HO/ELIG	117	4F40BXE	4L2' F40BX/ELIG	144
2F55BXE	2L2'55BXE/ELIG	112			

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Table E: New Fixture Codes (continued)

Measure Code 30 – High Efficiency Fluorescent Fixtures - Note: ♦ Codes to be used for 30 & 32 watt “HP T8’s”

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1F30EEE ♦	1L4'T8EE/ELEE	27	2F50BXE	2L2' F50BX/ELIG	108
1F30EEL ♦	1L4'T8EE/ELEE LBF	24	2F59SSE	2L8' T8/ELIG	109
1F30EEH ♦	1L4'T8EE/ELEE HBF	37	2F59SSL	2L8' T8/ELIG LBF	100
1F32EEE ♦	1L4' T8EE/ELEE	28	2W32SSE	2L4' TW T8/ELIG	30
1F32EEL ♦	1L4' T8EE/ELEE LBF	25	2W32SSH	2L4' TW T8/HI-LUM	39
1F32EEH ♦	1L4' T8EE/ELEE HBF	38	3F28EEE	3L4'T8EE/ELEE	72
1F32SSE	1L4' T8/ELIG	30	3F28EEL	3L4'T8EE/ELEE LBF	62
1F32SSL	1L4 T8/ELIG LBF	26	3F28EEH	3L4'T8EE/ELEE HBF	96
2F17SSE	2L2' T8/ELIG	37	3F30EEE ♦	3L4'T8EE/ELEE	81
2F28EEE	2L4' T8EE/ELEE	49	3F30EEL ♦	3L4'T8EE/ELEE LBF	69
2F28EEL	2L4' T8EE/ELEE LBF	42	3F30EEH ♦	3L4'T8EE/ELEE HBF	106
2F28EEH	2L4'T8EE/ELEE HBF	65	3F32EEE ♦	3L4' T8EE/ELEE	82
2F30EEE ♦	2L4'T8EE/ELEE	53	3F32EEL ♦	3L4' T8EE/ELEE LBF	72
2F30EEL ♦	2L4'T8EE/ELEE LBF	46	3F32EEH♦	3L4' T8EE/ELEE HBF	111
2F30EEH ♦	2L4'T8EE/ELEE HBF	72	3F32SSE	3L4' T8/ELIG	88
2F32EEE ♦	2L4' T8EE/ELEE	55	3F32SSL	3L4 T8/ELIG LBF	76
2F32EEL ♦	2L4' T8EE/ELEE LBF	48	3F32SSH	3L4' T8/ELIG HBF	112
2F32EEH ♦	2L4' T8EE/ELEE HBF	74			
2F32SSE	2L4' T8/ELIG	60			
2F32SSL	2L4 T8/ELIG LBF	52			
2F32SSH	2L4' T8/ELIG HBF	78			

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Table E: New Fixture Codes (continued)

Measure Code 32 – High Efficiency Fluorescent Fixtures - Note: ♦ Codes to be used for 30 & 32 watt “HP T8’s”

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1F28SSE	1L4' T5/ELIG	32	2F32SSE	2L4' T8/ELIG	60
1F30EEE ♦	1L4'T8EE/ELEE	27	2F32SSL	2L4 T8/ELIG LBF	52
1F30EEL ♦	1L4'T8EE/ELEE LBF	24	2F32SSH	2L4' T8/ELIG HBF	78
1F30EEH ♦	1L4'T8EE/ELEE HBF	37	2F40BXE	2L2' F40BX/ELIG	72
1F32EEE ♦	1L4' T8EE/ELEE	28	2F59SSL	2L8' T8/ELIG LBF	100
1F32EEL ♦	1L4' T8EE/ELEE LBF	25	2W32SSE	2L4' TW T8/ELIG	30
1F32EEH ♦	1L4' T8EE/ELEE HBF	38	2W32SSH	2L4' TW T8/HBF	39
1F32SSE	1L4' T8/ELIG	30	3F17SSE	3L2' T8/ELIG	53
1F32SSL	1L4 T8/ELIG LBF	26	3F28EEE	3L4'T8EE/ELEE	72
2F14SSE	2L2' T5/ELIG	32	3F28EEL	3L4'T8EE/ELEE LBF	62
2F24SSE	2L2' T5HO/ELIG	53	3F28EEH	3L4'T8EE/ELEE HBF	96
2F28SSE	2L4' T5/ELIG	63	3F30EEE ♦	3L4'T8EE/ELEE	81
2F28SSL	2L4' T5/ELIG LBF	60	3F30EEL ♦	3L4'T8EE/ELEE LBF	69
2F28SSH	2L4' T5/ELIG HBF	73	3F30EEH ♦	3L4'T8EE/ELEE HBF	106
2F28EEE	2L4' T8EE/ELEE	48	3F32EEE ♦	3L4' T8EE/ELEE	82
2F28EEL	2L4' T8EE/ELEE LBF	42	3F32EEL ♦	3L4' T8EE/ELEE LBF	72
2F28EEH	2L4'T8EE/ELEE HBF	65	3F32EEH♦	3L4' T8EE/ELEE HBF	111
2F30EEE ♦	2L4'T8EE/ELEE	53	3F32SSE	3L4' T8/ELIG	88
2F30EEL ♦	2L4'T8EE/ELEE LBF	46	3F32SSL	3L4 T8/ELIG LBF	76
2F30EEH ♦	2L4'T8EE/ELEE HBF	72	3F32SSH	3L4' T8/ELIG HBF	112
2F32EEE ♦	2L4' T8EE/ELEE	55			
2F32EEL ♦	2L4' T8EE/ELEE LBF	48			
2F32EEH ♦	2L4' T8EE/ELEE HBF	74			

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Table E: New Fixture Codes (continued)

Measure Code 33 - High Efficiency Fluorescent Fixtures - Note: ♦ Codes to be used for 33A & 33A1 watt "HP T8's"

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1F21SSE	1L3' T5/ELIG	27	3F25SSE	3L3' T8/ELIG	68
1F25SSE	1L3' T8/ELIG	24	3F32EEE ♦	3L4' T8EE/ELEE	82
1F28SSE	1L4' T5/ELIG	32	3F32EEL ♦	3L4' T8EE/ELEE LBF	72
1F32EEE ♦	1L4' T8EE/ELEE	28	3F32EEH ♦	3L4' T8EE/ELEE HBF	111
1F32EEL ♦	1L4' T8EE/ELEE LBF	25	3F32SSE	3L4' T8/ELIG	88
1F32EEH ♦	1L4' T8EE/ELEE HBF	38	3F32SSL	3L4 T8/ELIG LBF	76
1F32SSE	1L4' T8/ELIG	30	3F32SSH	3L4' T8/ELIG HBF	112
1F32SSL	1L4 T8/ELIG LBF	26	4F25SSE	4L3' T8/ELIG	88
1F39HSE	1L3 T5/HO/ELIG	43	4F32EEE ♦	4L4' T8EE/ELEE	108
1F54HSE	1L4 T5 HO//ELIG	59	4F32EEL ♦	4L4' T8EE/ELEE LBF	96
1F59SSE	1L8 T8/ELIG	60	4F32EEH ♦	4L4' T8EE/ELEE HBF	148
2F21SSE	2L3' T5/ELIG	52	4F32SSE	4L4' T8/ELIG	112
2F25SSE	2L3' T8/ELIG	47	4F32SSL	4L4 T8/ELIG LBF	98
2F28SSE	2L4' T5/ELIG	63	4F32SSH	4L4' T8/ELIG HBF	156
2F32EEE ♦	2L4' T8EE/ELEE	55			
2F32EEL ♦	2L4' T8EE/ELEE LBF	48			
2F32EEH ♦	2L4' T8EE/ELEE HBF	74			
2F32SSE	2L4' T8/ELIG	60			
2F32SSL	2L4 T8/ELIG LBF	52			
2F32SSH	2L4 T8/ELIG HBF	78			
2F39HSE	2L3' T5 HO/ELIG	85			
2F54HSE	2L4' T5 HO/ELIG	117			
2F59SSEL	2L8' T8/ELIG	109			
2F59SSL	2L8' T8/ELIG LBF	100			
2F80SSE	2L8' T8 HO/ELIG	160			

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Table E: New Fixture Codes (continued)

Measure Code 41 – Fluorescent Fixtures with Reflectors - Note: ♦ Codes to be used for 30 & 32 watt “HP T8’s”

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1F30EEE ♦	1L4'T8EE/ELEE	27	3F28EEE	3L4'T8EE/ELEE	72
1F30EEL ♦	1L4'T8EE/ELEE LBF	24	3F28EEL	3L4'T8EE/ELEE LBF	62
1F30EEH ♦	1L4'T8EE/ELEE HBF	37	3F28EEH	3L4'T8EE/ELEE HBF	96
1F32EEE ♦	1L4' T8EE/ELEE	28	3F30EEE ♦	3L4'T8EE/ELEE	81
1F32EEL ♦	1L4' T8EE/ELEE LBF	25	3F30EEL ♦	3L4'T8EE/ELEE LBF	69
1F32EEH ♦	1L4' T8EE/ELEE HBF	38	3F30EEH ♦	3L4'T8EE/ELEE HBF	106
1F32SSE	1L4' T8/ELIG	30	3F32EEE ♦	3L4' T8EE/ELEE	82
1F32SSL	1L4 T8/ELIG LBF	26	3F32EEL ♦	3L4' T8EE/ELEE LBF	72
2F17SSE	2L2' T8/ELIG	37	3F32EEH♦	3L4' T8EE/ELEE HBF	111
2F28EEE	2L4' T8EE/ELEE	48	3F32SSE	3L4' T8/ELIG	88
2F28EEL	2L4' T8EE/ELEE LBF	42	3F32SSL	3L4 T8/ELIG LBF	76
2F30EEE ♦	2L4'T8EE/ELEE	53	3F32SSH	3L4' T8/ELIG HBF	112
2F30EEL ♦	2L4'T8EE/ELEE LBF	46	4F17SSE	4L2' T8/ELIG	62
2F30EEH ♦	2L4'T8EE/ELEE HBF	72	4F28EEE	4L4'T8EE/ELEE	94
2F32EEE ♦	2L4' T8EE/ELEE	55	4F28EEL	4L4'T8EE/ELEE LBF	83
2F32EEL ♦	2L4' T8EE/ELEE LBF	48	4F28EEH	4L4'T8EE/ELEE HBF	126
2F32EEH ♦	2L4' T8EE/ELEE HBF	74	4F30EEE♦	4L4'T8EE/ELEE	104
2F32SSE	2L4' T8/ELIG	60	4F30EEL♦	4L4'T8EE/ELEE LBF	92
2F32SSL	2L4 T8/ELIG LBF	52	4F30EEH♦	4L4'T8EE/ELEE HBF	145
2F32SSH	2L4' T8/ELIG HBF	78	4F32EEE♦	4L4' T8EE/ELEE	108
2F40BXE	2L2' F40BX/ELIG	72	4F32EEL♦	4L4' T8EE/ELEE LBF	96
2F50BXE	2L2' F50BX/ELIG	108	4F32EEH♦	4L4' T8EE/ELEE HBF	148
2F59SSL	2L8' T8/ELIG LBF	100	4F32SSE	4L4' T8/ELIG	112
			4F32SSL	4L4' T8/ELIG LBF	98
			4F32SSH	4L4 T8/ELIG HBF	156
			4F40BXE	4L2' F40BX/ELIG	144

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Measure Code 42 – Fluorescent Fixtures with Reflectors - Note: ♦ Codes to be used for 30 & 32 watt “HP T8’s”

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1F30EEE ♦	1L4'T8EE/ELEE	27	3F28EEE	3L4'T8EE/ELEE	72
1F30EEL ♦	1L4'T8EE/ELEE LBF	24	3F28EEL	3L4'T8EE/ELEE LBF	62
1F30EEH ♦	1L4'T8EE/ELEE HBF	37	3F28EEH	3L4'T8EE/ELEE HBF	96
1F32EEE ♦	1L4' T8EE/ELEE	28	3F30EEE ♦	3L4'T8EE/ELEE	81
1F32EEL ♦	1L4' T8EE/ELEE LBF	25	3F30EEL ♦	3L4'T8EE/ELEE LBF	69
1F32EEH ♦	1L4' T8EE/ELEE HBF	38	3F30EEH ♦	3L4'T8EE/ELEE HBF	106
1F32SSE	1L4' T8/ELIG	30	3F32EEE ♦	3L4' T8EE/ELEE	82
1F32SSL	1L4 T8/ELIG LBF	26	3F32EEL ♦	3L4' T8EE/ELEE LBF	72
1F59SSE	1L8' T8/ELIG	60	3F32EEH♦	3L4' T8EE/ELEE HBF	111
1F80SSE	1L8'T8 HO/ELIG	85	3F32SSE	3L4' T8/ELIG	88
2F28EEE	2L4' T8EE/ELEE	48	3F32SSL	3L4 T8/ELIG LBF	76
2F28EEL	2L4' T8EE/ELEE LBF	42	4F17SSE	4L2' T8/ELIG	62
2F30EEE ♦	2L4'T8EE/ELEE	53	4F28EEE	4L4'T8EE/ELEE	94
2F30EEL ♦	2L4'T8EE/ELEE LBF	46	4F28EEL	4L4'T8EE/ELEE LBF	83
2F30EEH ♦	2L4'T8EE/ELEE HBF	72	4F28EEH	4L4'T8EE/ELEE HBF	126
2F32EEE ♦	2L4' T8EE/ELEE	55	4F30EEE♦	4L4'T8EE/ELEE	104
2F32EEL ♦	2L4' T8EE/ELEE LBF	48	4F30EEL♦	4L4'T8EE/ELEE LBF	92
2F32EEH ♦	2L4' T8EE/ELEE HBF	74	4F30EEH♦	4L4'T8EE/ELEE HBF	145
2F32SSE	2L4' T8/ELIG	60	4F32EEE♦	4L4' T8EE/ELEE	108
2F32SSL	2L4 T8/ELIG LBF	52	4F32EEL♦	4L4' T8EE/ELEE LBF	96
2F32SSH	2L4' T8/ELIG HBF	78	4F32EEH♦	4L4' T8EE/ELEE HBF	148
2F59SSE	2L8' T8/ELIG	109	4F32SSE	4L4' T8/ELIG	112
2F59SSL	2L8' T8/ELIG LBF	100	4F32SSL	4L4' T8/ELIG LBF	98
2F80SSE	2L8'T8 HO/ELIG	160	4F32SSH	4L4 T8/ELIG HBF	156
			4D32SSL	4L4 DTWT8/ELIG LBF	49
			4F40BXE	4L2' F40BX/ELIG	144

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Table E: New Fixture Codes (continued)

Measure Code 21 – Single Lamp Compact Fluorescent Fixtures

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1C0005S	5W COMPACT HW	7	1C0028S	28W COMPACT HW	30
1C0007S	7W COMPACT HW	9	1C0032S	32W CIRCLINE HW	34
1C0009S	9W COMPACT HW	11	1C0042E	1/42W COMPACT HW ELIG	48
1C0011S	11W COMPACT HW	13	1C0044S	44W CIRCLINE HW	46
1C0013S	13W COMPACT HW	15	1C2D10E	10W 2D COMPACT HW ELIG	12
1C0018E	18W COMPACT HW ELIG	20	1C2D16E	16W 2D COMPACT HW ELIG	18
1C0018S	18W COMPACT HW	20	1C2D21E	21W 2D COMPACT HW ELIG	22
1C0022S	22W COMPACT HW	24	1C2D28E	28W 2D COMPACT HW ELIG	28
1C0026E	26W COMPACT HW ELIG	28	1C2D38E	38W 2D COMP.HW ELIG	36
1C0026S	26W COMPACT HW	28			

Measure Code 21 – Double Lamp Compact Fluorescent Fixtures

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1C2232S	22/32W CIRCLINE HW	58	2C0018E	2/18W COMP. HW ELIG	40
1C3240S	32/40W CIRCLINE HW	80	2C0026E	2/26W COMP. HW ELIG	54
2C0005S	2/5W COMPACT HW	14	2C0032E	2/32W COMPACT HW ELIG	68
2C0007S	2/7W COMPACT HW	18	2C0042E	2/42W COMPACT HW ELIG	100
2C0009S	2/9W COMPACT HW	22	3C0009S	3/9W COMPACT HW	33
2C0011S	2/11W COMPACT HW	26	3C0013S	3/13W COMPACT HW	45
2C0013E	2/13W COMPACT HW ELIG	28	3C0018E	3/18W COMPACT HW ELIG	60
2C0013S	2/13W COMPACT HW	30			

Measure Code 23 – Dimmable Compact Fluorescent Fixtures

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1C0018E	18W COMPACT HW ELIG	20	1C0026E	26W COMPACT HW ELIG	28
1C0023E	1/23W COMPACT HW ELIG	25	2C0018E	2/18W COMP. HW ELIG	40

Measure Code 24/25 – LED or LEC Exit Sign Fixtures

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1E0015	1.5 WATT LED	1.5	1E0008	8.0 WATT LED	8
1E0002	2.0 WATT LED	2	1E0105	10.5 WATT LED	10.5
1E0003	3.0 WATT LED	3	1E0005C	0.5 WATT LEC	0.5
1E0005	5.0 WATT LED	5			

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Table E: New Fixture Codes (continued)

Measure Code 52 – HID Fixtures (Metal Halide Pulse Start)

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1M0100P	100W MH CWA *	128	1M0300R	300W Linear	324
1M0100R	100W MH Linear *	118	1M0320P	320W CWA	365
1M0150P	150W MH CWA *	190	1M0320R	320W LINEAR	345
1M0150R	150W MH Linear *	172	1M0350P	350W CWA	400
1M0175P	175W MH CWA *	208	1M0350R	350W LINEAR	375
1M0175R	175W MH Linear *	190	1M0400P	400W CWA	455
1M0200P	200W CWA	232	1M0400R	400W LINEAR	430
1M0200R	200W LINEAR	218	1M0450P	450W MH CWA	508
1M0250P	250W CWA	288	1M0750P	750W MH CWA	815
1M0250R	250W MH LINEAR	265	1M1000P	1000W CWA	1080
1M0300P	300W CWA	342			

Measure Code 55 – HID Fixtures (High Pressure Sodium)

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1H0035S	35W HPS	45	1H0250S	250W HPS	295
1H0050S	50W HPS	65	1H0310S	310W HPS	350
1H0070S	70W HPS	90	1H0360S	360W HPS	435
1H0100S	100W HPS	130	1H0400S	400W HPS	460
1H0150S	150W HPS	190	1H0600S	600W HPS	675
1H0200S	200W HPS	240	1H0750S	750W HPS	835
1H0225S	225W HPS	275	1H1000S	1000W HPS	1085

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Table E: New Fixture Codes (continued)

Measure Code 56 – High Intensity Fluorescent Fixtures (HIF) (125 watts to 219 watts)

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
3C0042E	3/42W COMPACT HW ELIG	141	4F36BXE	4L2' F36BX/ELIG	148
3F50BXE	3L2' F50BX/ELIG	162	4F40BXE	4L2' F40BX/ELIG	144
3F54HSE	3L4' T5 HO/ELIG	177	4F40BXH	4L 40WT5 (Std.) Bal	170
3F55BXE	3L2' F55BX/ELIG	168	4F50BXE	4L2' F50BX/ELIG	216
4C0032E	4/32W COMPACT HW ELIG	152	5F40BXE	5L2' F40BX/ELIG	190
4C0042E	4/42W COMPACT HW ELIG	188	6C0026E	6/26W COMPACT HW ELIG	162
4F32EEH◆	4L4' T8EE/ELEE HBF	148	6F36BXE	6L2' F36BX/ELIG	212
4F32SSH	4L4' T8/ELIG HBF	156	6F40BXE	6L2' F40BX/ELIG	204
5F32SSH	5L4' T8/ELIG HBF	190	8C0026E	8/26W COMPACT HW ELIG	216

Measure Code 57 – High Intensity Fluorescent Fixtures (HIF) (> 219 watts)

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
4F54HSE	4L 54W T5 HO	234	8C0032E	8/32W COMPACT HW ELIG	304
4F55BXE	4L2' F55BX/ELIG	224	8C0042E	8/42W COMPACT HW ELIG	376
5F50BXE	5L2' F50BX/ELIG	270	8F36BXE	8L2' F36BX/ELIG	296
5F54HSE	5L 54W T5 HO	294	8F40BXE	8L2' F40BX/ELIG	288
5F55BXE	5L2' F55BX/ELIG	280	8F50BXE	8L2' F50BX/ELIG	432
6C0032E	6/32W COMPACT HW ELIG	228	8F55BXE	8L2' F55BX/ELIG	448
6C0042E	6/42W COMPACT HW ELIG	282	9F36BXE	9L2' F36BX/ELIG	318
6F32EEH◆	6L4' T8EE/ELEE HBF	222	9F40BXE	9L2' F40BX/ELIG	288
6F32SSH	6L4' T8/ELIG HBF	234	9F50BXE	9L2' F50BX/ELIG	486
6F54HSE	6L 54W T5 HO	351	9F55BXE	9L2' F55BX/ELIG	504
6F50BXE	6L2' F50BX/ELIG	324	12F40BE	12L2' F40BX/ELIG	408
6F55BXE	6L2' F55BX/ELIG	336	12F50BE	12L2' F50BX/ELIG	648
			12F55BE	12L2' F55BX/ELIG	672

Measure Code 70 – Specialty Metal Halide Fixtures

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1M0035E	35 or 39 WATT MH/ELEC	44	1M0070E	70 WATT MH/ELEC	80
1M0050E	50 WATT MH/ELEC	58	1M0100E	100 WATT MH/ELEC	112

Measure Code 26, 28, 29 – LED Traffic Signals

<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>	<u>Fixture Code</u>	<u>Fixture Description</u>	<u>Watts</u>
1E0006	6 WATT LED PED	6	1E0017	17 WATT LED	17
1E0009	9 WATT LED PED	9	1E0020	20 WATT LED	20
1E0010	10 WATT LED	10	1E0024	24 WATT LED	24
1E0014	14 WATT LED	14			

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Lighting Instruction Legend for Fixture Code and Description Tables

W	=	Watt
INC	=	Incandescent
HPS	=	High Pressure Sodium
MH	=	Metal Halide
Mercury	=	Mercury Vapor
MV	=	Mercury Vapor
HID	=	High Intensity Discharge Lamp and Ballast System (MH, HPS, MV)
HIF	=	High Intensity Discharge Lamp and Ballast System
BX	=	BIAX Lamp (long twin tube lamp)
STD	=	Standard Efficient Lamp or Ballast
EE	=	Energy Efficient Lamp
T8EE	=	Energy Efficient T8 lamp
LV	=	Low Voltage
HO	=	High Output Lamp
VHO	=	Very High Output Lamp
F20, F32, F48, etc.	=	Lamp Size, Type or Wattage indicator
EEMAG	=	Energy Efficient Magnetic Ballast
ELEE	=	Energy Efficient Electronic Ballast (ie T8's & High Performance T8's)
ELIG	=	Normal Ballast Factor (BF = .87, .88) Electronic Ballast
LBF	=	Low Ballast Factor (BF <.80) Electronic Ballast
HBF	=	High Ballast Factor (BF > 1.0) Electronic Ballast
HW	=	Hard Wired
COMPACT	=	Compact Fluorescent Lamp (CFL) and Ballast
CWA	=	Constant Wattage Autotransformer (HID)
LINEAR	=	Linear Control Electronic Ballast (HID)
PF	=	Power Factor
LED	=	Light Emitting Diode
LEC	=	Electroluminescent