



Legislation and the IES

Bob Horner

IES Director of Public Policy

20-Oct-2011

IES and Public Policy

- New staff position as of May 1, 2010
- Established by the IES Strategic Plan
- Need to have a public policy plan
- Due to IES' legal status, “education”, not “lobbying”
- Concentrate on Federal level and on those States that are legislatively active



IES Public Policy Strategy

- “Position IES as an advocate for quality lighting among the public”
- “Position IES as an advocate for quality lighting among Governmental entities”
- Position IES as the “Lighting Authority” for all legislative and regulatory activity
- Establish active, working relationships with other industry organizations
- Focus on Buildings, not Products
- Advocate to (and educate) the federal government regarding new measures of energy efficiency that promote good lighting design, proper application, and overall “lighting quality”



IES Generally Avoids:

- Product issues (lamp, ballast, luminaire regs)
- Material-specific environmental issues (toxic materials, disposal)
- Business issues (e.g., taxes on design services)
- Preferential product support (LED street lighting)
- Grass roots efforts



What's Bob Been Doing?

- Monthly meetings in Washington, DC
- Reporting activities to the IES Board and membership
- Developing a strategic plan to address the issue of Lighting Quality
- Developing relationships with industry organizations and government departments
 - IALD, ASHRAE, AIA, USGBC, NIBS, IDA, ASE, NEMA, EFC, HPBCCC, BOMA, ACEEE
 - DOE, GSA, EPA, FTC, HUD
- Appointed Co-Chairman, Lighting Working Group, Zero Energy CBC
 - Effort to have “Zero Energy Buildings” for new construction by 2030 and for all existing buildings by 2050
- Elected to Executive Committee of the HPBCCC
- Joined Consultative Council of NIBS
- Steering Committee – NEMA Daylight Management Council
- Writing a bi-monthly column for LD + A
- Developed a web page for Public Policy issues
- Giving presentations to IES Sections



Specific Policy Initiatives

- Focus on Buildings, not Products
 - Adoption of Energy Codes (Std 90.1, 189.1, etc.)
 - Support of new energy code metrics
 - Power (LPD) vs. Energy (EUI)
 - Recommissioning
 - Lighting quality
 - Integrated Design; Sustainable Design
 - High Performance Buildings
 - Net Zero Energy Buildings (Daylighting; Controls)



Why focus on buildings?

- Our homes, offices, schools, and other buildings consume 40% of the primary energy and **70% of the electricity** in the U.S. annually.
- Buildings consume about **12% of the potable water** in this country.
- The construction of buildings and their related infrastructure consume approximately **60% of all raw materials** used in the U.S. economy.
- Buildings account for **39% of U.S. CO2 emissions** a year. This approximately equals the combined carbon emissions of Japan, France, and the United Kingdom.
- Americans spend about 90% of their time indoors.



High Performance Buildings*

- High Performance Buildings Congressional Caucus (HPBCC). Co-chaired by Rep. Russ Carnahan (D-MO) and Rep. Judy Biggert (R-IL).
- HPBCC Coalition (HPBCCC) formed by private sector organizations to support the Congressional Caucus. ASHRAE took leading role and hosts numerous briefings on applicable topics.
 - 90 member organizations
- HPBCCC Executive Committee
 - ASHRAE, NEMA, USGBC, AIA, IES, et al. (13 total)
- Check it out: www.hpbcc.org

* “High Performance Building” means a building that integrates and optimizes, on a life cycle basis, all major high performance attributes including energy conservation, environment, safety, security, durability, accessibility, cost/benefit, productivity, sustainability, functionality, and operational considerations.

Energy Independence and Security Act of 2007.

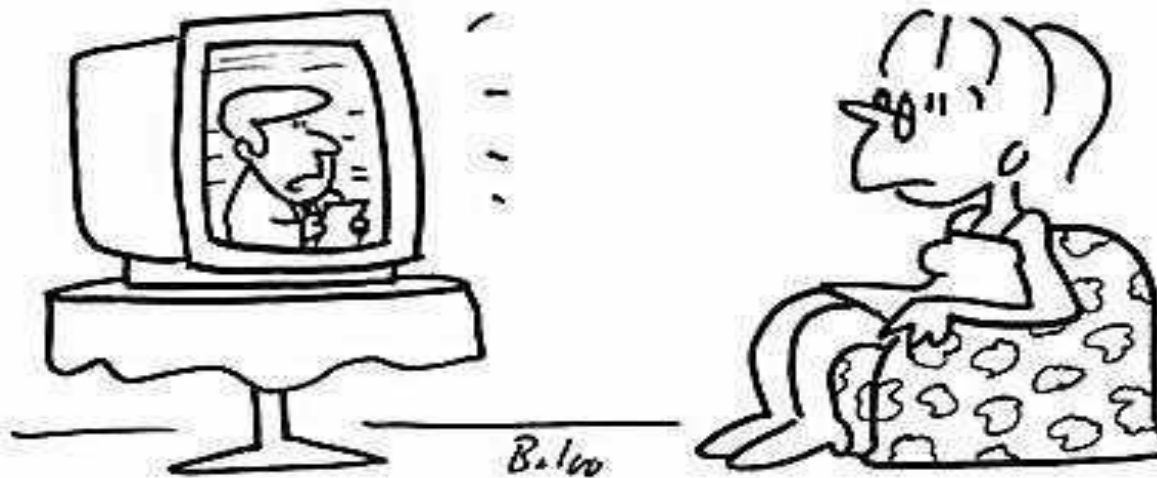


Active Projects

- LUMEN Group
- Consultative Council – NIBS
- HPBCCC; hosted by ASHRAE
- Adoption of MLO; Cooperation with IDA
- NEMA Daylight Management Committee
- California – Education and Training
- AIA – Integrated Project Delivery; post-occupancy evaluations
- NAED – joint Hill visits
- ALA – Lighting Quality brochure; joint Hill visits; Light+Seniors symposium



Federal Regulations and Legislation



"The Federal Government today authorized a ten-year study of all its five-year studies."

30 Year History: Federal Regulations for Energy Efficiency of Buildings

1978

- States receiving financial assistance from the federal government required to initiate "mandatory programs and measures, including energy conservation standards for new buildings".
- **EPCA amendment**

1992

- **DOE** allowed to determine whether the 1992 Council of American Building Officials (CABO) Model Energy Code (MEC) and ASHRAE Standard 90.1-1989 would improve energy efficiency for residential and commercial buildings respectively.
- **EPACT 1992**

2005

- **Commercial Building Tax Deduction** with up to 60 cents/sf for lighting that exceeds ASHRAE/IES 90.1-2001
- **Federal buildings** to be 20% more efficient by 2015 and new buildings must be 30% below ASHRAE/IES 90.1-2004; there are annual verification requirements
- **EPACT 2005**

2007

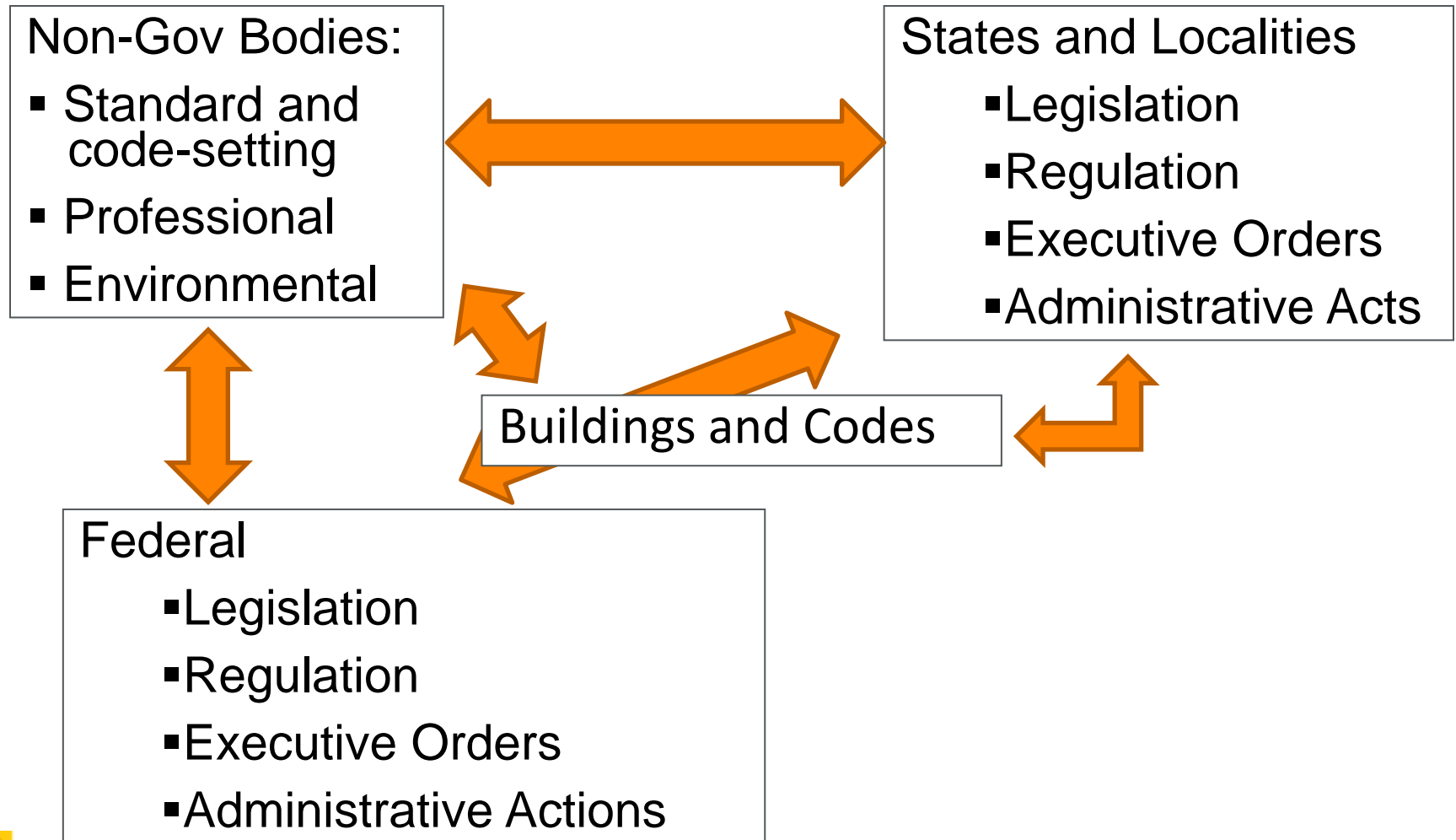
- **Zero Net Energy Commercial Buildings Initiative** established; goal to reach zero net energy for all new commercial buildings by 2030, 50% of existing commercial building stock by 2040, and all of existing by 2050
- **EISA (Energy Independence and Security Act)**

2008

- **Commercial Building Tax Deduction** extended through 2013
- **ARRA (American Recovery and Reinvestment Act)**

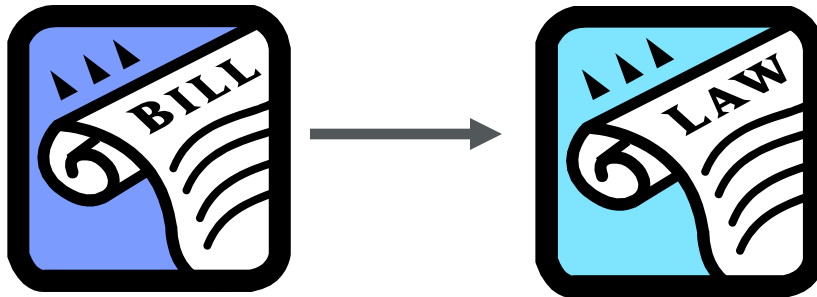


OUR CONCERN: ENERGY-RELATED LAWS, REGULATIONS, AND CODES



Legislation

- **Legislation** is law enacted by a legislative body, such as the U.S. Congress or a state legislature
- **Enabling legislation** is legislation that gives appropriate officials, such as the U.S. Department of Energy (DOE) or a state energy or environmental department the authority to implement or enforce the law



Regulations

- **Regulations** are rules or orders that have the force of law that originate from the executive branch (usually from an agency), and deal with the specifics of a program.
- Congress, for example, may instruct US EPA to reduce automotive emissions by 5%, but the EPA must develop regulations to reach this goal.
- For lighting, the US DOE is the primary federal agency that issues energy-related regulations.



Rulemaking

- **Rulemaking** refers to the **process** that government agencies use to create, or enact, **regulations**
- Some rulemakings are specified in law to occur at particular intervals and are ongoing; an example is the series of DOE rulemakings specified in EISA 2007 for general service incandescent lamps
- There are several stages of notification for a federal rulemaking, all of which are published in the Federal Register (FR)
- The **Final Rule** is – of course – the most important
 - For lighting, the effective date of the final rule is usually 3 years after publication in the Federal Register





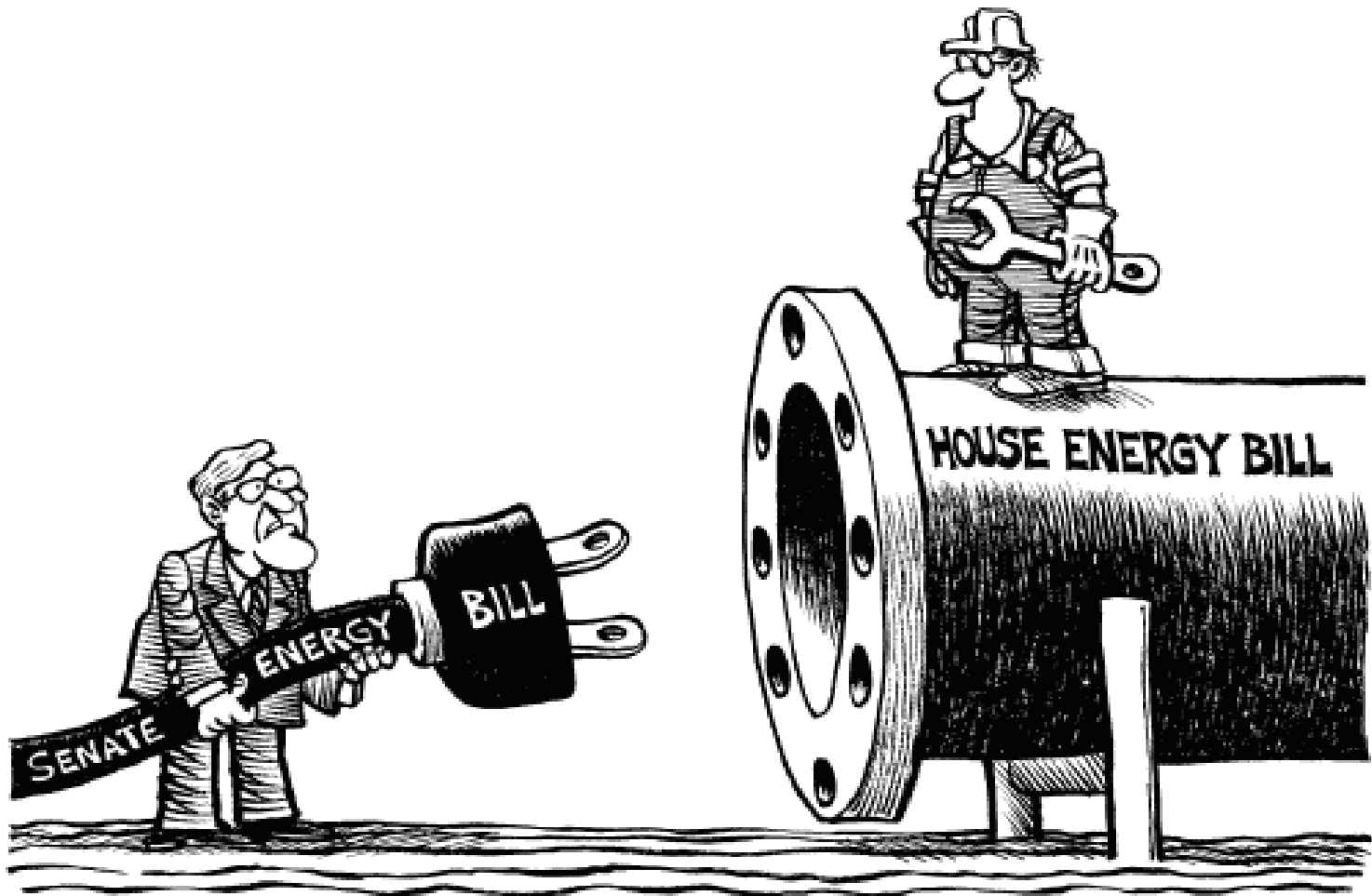
Appliance Standards



- For nearly two decades, certain lamps and ballasts have been classified as “appliances” and are subject to energy efficiency regulations
- Typically minimum performance standards are set, using efficacy or efficiency measures
 - LPW for lamps
 - BEF or efficiency for ballasts
- Products that don’t meet these standards cannot be manufactured or imported for use in the US by a certain date; product made prior to that date and already on the shelf or in the warehouse does not have to be cleared out
- Occasionally a product is banned outright, but this is rare



New Federal Energy Legislation



H.R. 2417 - Better Use of Light Bulbs (BULB) Act

- Introduced by Rep. Joe Barton (R-TX) in July
- Failed in the House but may be reconsidered
- Rep. Michael Burgess (R-TX) proposed an amendment to Appropriations bill to stop funding

Note: Canada considering delaying the incandescent phase-out for 2 years



S.1000 Energy Savings and Industrial Competitiveness Act

- Sponsored by Sen. Jeanne Shaheen (D-NH) and Sen. Rob Portman (R-OH)
- DOE must set targets for energy savings in commercial and residential buildings using 2009 IECC Residential code and ASHRAE 90.1-2010 Commercial code as the baselines
- Targets must be set for specific years that are technologically feasible and life-cycle cost effective (ROI)
- DOE must assist code-setting bodies by giving technical assistance in several areas, including building energy analysis, building demonstrations, performance based standards, and definitions of energy use intensity
- Also supports training at the University level, financing for building owners and manufacturers, and proposes a “Supply Star” initiative to improve supply chains and logistics



S.398 Implementation of National Consensus Appliance Agreements Act (INCA bill)

- Sponsored by Sen. Jeff Bingaman (D-NM) with (barely) bi partisan support
- Consolidates and establishes “energy conservation standards” for various appliances
- Included in lighting:
 - GU-24 base lamps
 - High wattage double-ended halogen
 - Mercury lamps
 - Consider new metric for IRL (not LPW)
- Outdoor lighting section removed



S.1321 Practical Energy Plan Act

- Sponsored by Sen. Richard Lugar (R-IN); no co-sponsors
- Addresses reduction in foreign oil dependence and building energy (no explicit lighting clauses)
- Mandates definitive graduated commercial building energy reduction targets of 15%, 30%, and 45% from 2014 – 2019
- Strong language for States to adopt National Model Code (Std. 90.1, IECC)

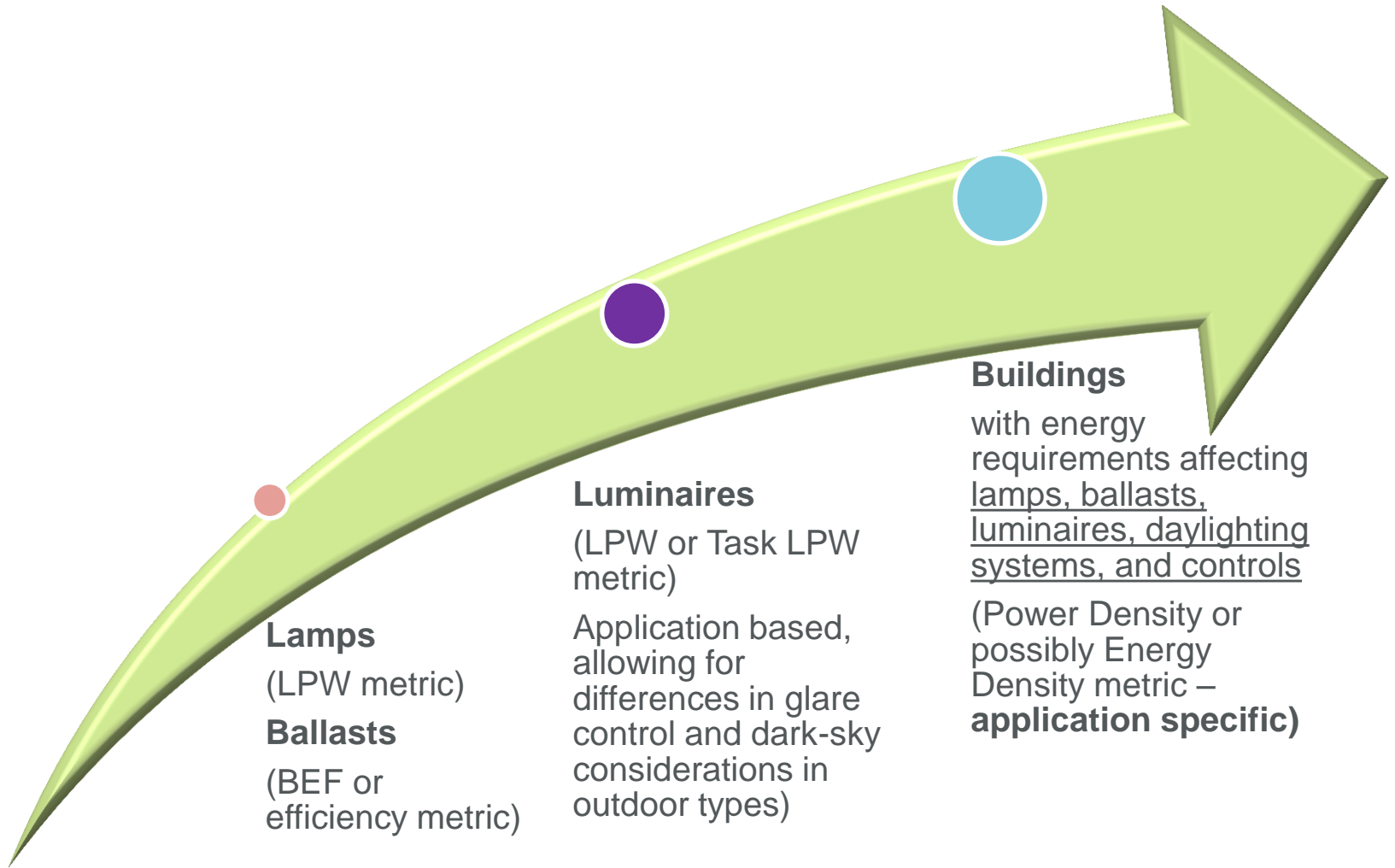


Federal Buildings Personnel Training Act of 2010

- Requires the General Services Administration (GSA) to develop and implement a government-wide program to train and certify personnel performing building operations and maintenance activities in federal buildings.
- Senate Bill S.3250 – passed July 20, 2010
 - Sponsored by Thomas Carper (D-DE)
- House Bill H.R.5112 – passed in December, 2010
 - Sponsored by Russ Carnahan (D – MO)
- Had bi-partisan support
- Curriculum to be developed by GSA within 18 months of passage
- Also applies to non-Federal personnel



Federal Regulatory Trend: **Lighting & Energy**



Comprehensive Overview of Legislation and Regulations Affecting Lighting Products



General service incandescent lamps



General Service Incandescent Lamps

- **What law sets standards for GS incandescent lamps?**
 - The Energy Independence and Security Act (EISA) 2007
- **Which lamps are GS incandescent?**
 - Medium screw base line voltage incandescent and halogen lamps intended for general use, from 310 through 2600 lumens
 - Medium screw base A-shapes
 - Medium screw base G-shapes ≤ 5 inches and >40 watts
 - Medium screw base F, B, BA, S, and CA shapes >40 watts
- **What lamps are not GS incandescent?**
 - Reflector lamps
 - Low voltage lamps
 - Colored lamps and special use lamps (e.g., bug, blacklight, appliance, 3-way, rough and vibration service)
 - Most décor lamps, however...
 - Intermediate base lamps will be 40 watts max, and Candelabra base lamps will be 60 watts max



The Rules

General Service Incandescent, SW, IF & Clear

Rated Lumen Ranges*	Approx. Wattage Today	New Max. Rated Wattage	New Min. Rated Lifetime	Effective Date in the US	Effective Date California
1490-2600	100	72	1,000 hours	1/1/2012	1/1/2011
1050-1489	75	53	1,000 hours	1/1/2013	1/1/2012
750-1049	60	43	1,000 hours	1/1/2014	1/1/2013
310-749	40	29	1,000 hours	1/1/2014	1/1/2013

- Minimum of 80 CRI
- Replacement options for standard incandescent include **halogen, CFL and LED**
- Remember – the standards do not apply to CFL and LED – only to filament lamps

*To find minimum LPW, divide lowest lumens in the range by the max allowable wattage. e.g., $1490/72 = 20.7$ LPW. Today's common 100W is about 17 LPW.



Consumer Lighting: FTC Labeling Rule

- Key elements of new labeling:
 - **Lumens** – not watts--are to be prominent
 - Lumen rating must be printed on the lamp
 - Lumen rating must be on front of package, along with estimated energy cost per year (at 11cents/kWh, 3 hours use per day)
 - “Lighting Facts” label on back of package will additionally feature life (in years), light appearance (as a scale from warm to cool plus the kelvin temperature), and “energy” used (in watts)
 - CFLs have a “contains mercury” wording requirement + website

<u>Brightness</u>
820 lumens
<u>Estimated Energy Cost</u>
\$7.23 per year

Front

Lighting Facts Per Bulb	
Brightness	820 lumens
Estimated Yearly Energy Cost \$7.23 Based on 3 hrs/day, 11¢/kWh Cost depends on rates and use	
Life	1.4 years
Based on 3 hrs/day	
Light Appearance	
Warm	Cool
▲ 2700 K	
Energy Used	60 watts

Back





Reflector Lamps



Incandescent Reflector Lamps (IRL)

- **What is an IRL?**

- A medium screw base line voltage incandescent or halogen reflector lamp from 40W through 205W with a diameter >2.25 inches. Shapes **include PAR, BR, ER, R, K, and blown PAR**. Rough Service and colored lamps are not included.

- **Who regulates IRL in the US?**

- The US Department of Energy (DOE) through the rulemaking process – the most recent rule was issued in 2009 and primarily covers PAR lamps

- **What law currently governs ER, BR, and R20 Lamps?**

- The Energy Independence and Security Act (EISA) exempts certain types
- Non-exempt types must meet the old 1992 standards or they are not allowed

- **When are the new standards for PAR lamps effective?**

- July 14, 2012



The Rules

New IRL Standards Effective July 14, 2012

Lamp Wattage	Lamp Type	Diameter	Voltage	LPW: Determined by Formulas
40W-205W	Standard Spectrum	> 2.5 inches (PAR30, PAR38, BR30 & ER30, BR40 & ER40)	≥ 125 (130V)	6.8 X lamp watts ^{0.27}
			< 125 (120V)	5.9 X lamp watts ^{0.27}
		>2.25 inches & ≤ 2.5 inches (R20 & PAR20)	≥ 125 (130V)	5.7 X lamp watts ^{0.27}
			< 125 (120V)	5.0 X lamp watts ^{0.27}
	Modified Spectrum	Standards are approx. 17% less stringent than for Standard Spectrum Lamps.		
<p>Exemptions to IRL Standards:</p> <p>Lamps that are 50W or less: ER30, BR30, BR40, and ER40</p> <p>Lamps that are 65W exactly: BR30, BR40, and ER40</p> <p>Lamps that are 45W or less: R20</p> <p>Exemptions should remain intact until 2014. Exact date unknown at this time.</p>				

Example: 60W 120V PAR 38: new minimum is 17.8 LPW. The 1992 min. was 11 LPW; a standard halogen PAR is 14.2 LPW and IR version is 18.5 LPW.



Update: ER/BR/R20 Incandescent Lamps

- Current law (EISA 2007) exempts certain ER/BR/R20 incandescent lamps from regulation:
 - Lamps that are 50W or less: ER30, BR30, BR40, and ER40
 - Lamps that are 65W exactly: BR30, BR40, and ER40
 - Lamps that are 45W or less: R20
- DOE has *determined* that these lamps come under their regulatory authority
- **Two possible outcomes** of this rulemaking are:
 - Exempted lamps will be removed from the market altogether because they will be held to the same efficacy standards as those set for PAR halogen lamps, or
 - BR, ER, and R20 could still exist if the new standard is less strict than for PAR halogen & allows halogen capsules to be incorporated into these shapes
- No prediction as to which possible outcome will prevail
- Rulemaking should be completed in 2011, **effective mid to late 2014**





General Service Fluorescent Lamps



The Rules

New GSFL Standards Effective July 14, 2012

Lamp Type	Correlated Color Temperature	Energy Conservation Standard, LPW
4-Foot (T8-T12) Medium Bi-pin ≥25W	≤ 4,500K	89
	> 4,500K & ≤ 7,000K	88
2-Foot (T8-T12) U-Shaped ≥25W	≤ 4,500K	84
	> 4,500K & ≤ 7,000K	81
8-Foot (T8-T12) Single Pin Slimline ≥52W	≤ 4,500K	97
	> 4,500K & ≤ 7,000K	93
8-Foot (T8-T12) High Output	≤ 4,500K	92
	> 4,500K & ≤ 7,000K	88
4-Foot (T5) Miniature Bi-pin Standard Output ≥26W	≤ 4,500K	86
	> 4,500K & ≤ 7,000K	81
4-Foot (T5) Miniature Bi-pin High Output ≥49W	≤ 4,500K	76
	> 4,500K & ≤ 7,000K	72





Compact Fluorescent Lamps



A Little-known Fact...

- The US government set minimum standards for bare and covered (no reflector) medium screw base self-ballasted CFLs manufactured for use in the US, effective January 1, 2006
- EPCACT 2005 set these standards, selecting 5 criteria from older Energy Star criteria (V2.0)
 - Initial efficacy
 - Lumen maintenance at 1000 hours
 - Lumen maintenance at 40% of rated life
 - Rapid cycle stress
 - Lamp life
- Any manufacturer or importer putting CFLs into the US market that do not meet those standards is in violation of US law

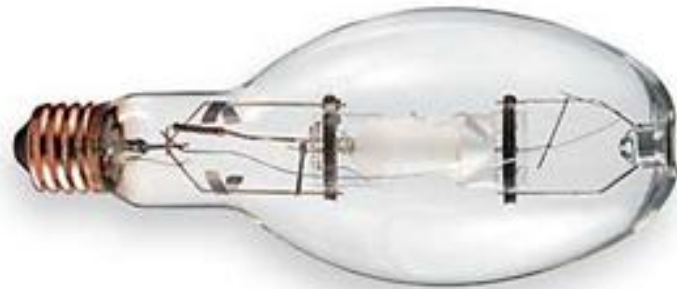


Update

DOE Fluorescent Ballast Rulemaking

- New rules will replace those originally established by the DOE Rulemaking in 2000 and updated by the EPA Act 2005 Legislation
 - **Current metric is Ballast Efficacy Factor (BEF)**, sometimes called ballast efficiency factor.
- **New standards will use ballast efficiency (%)** and will cover
 - Ballasts for T8 and T12 4-ft. and 2-ft. U-lamps with medium bi-pin bases
 - Ballasts for T8 and T12 8-ft. lamps with single pin bases
 - Ballasts for T8 and T12 8-ft. HO lamps with RDC bases





HID Lamps



Update: HID Lamps

- Minimum energy performance standards (MEPS) for HID lamps have not previously been set by the DOE
- Earlier in 2010, DOE *determined* such standards should be set, and so the rulemaking process has just begun
- One target of these rules will be probe start MH lamps, which is in synch with the trending of MH luminaire (ballast) requirements
- Final rule will likely be issued in 2013, **effective in 2016**
- If, for some reason, federal outdoor lighting provisions are not adopted by Congress before 2013, this rulemaking will also include a **ban** on mercury vapor lamp production for use in the US, effective 2016



Update: Metal Halide Systems

New Rulemaking in Progress

- **Metal Halide Luminaires**
- More rules will be issued in 2012, **effective 2015**, for ballasts in new metal halide luminaires
- The new rules will expand beyond the current wattage range
 - <150W are already pulse start and new standards may be set such that only electronic ballasts will meet them
- It is possible that some current ballast efficiency requirements could be edged even higher (keep an eye on the 88% for pulse start MH)



What will **likely** happen in 2012?

House and Senate Energy Bills or DOE Rulemakings

IRL:

New DOE rulemaking will continue for exempt BR/ER lamps. New standards will be effective 2014; these will either be gone or halogen IR versions could be allowed

MV Lamps:

Banned effective 2016 – either in an energy bill or in a rulemaking

Double Ended Halogen Lamps:

High wattage (500W and higher) must have higher efficacy by 2016 (part of INCA bill)

CBTD:

Possible increase to \$3/sf (\$1/sf for lighting); likely added to new energy legislation

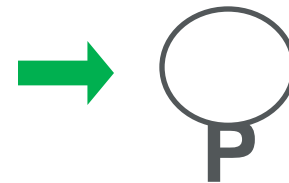
Outdoor Luminaires:

Minimum LPWs, effective 2013?

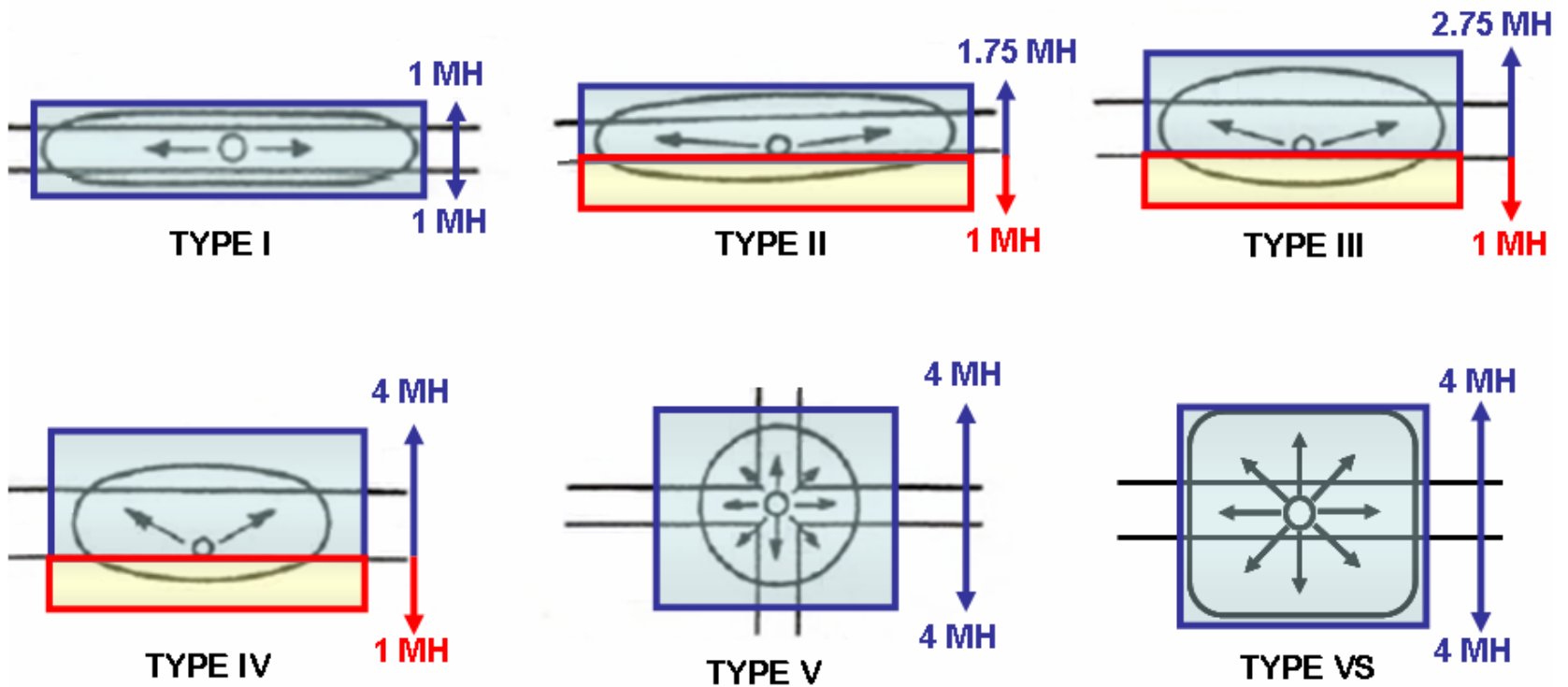


New Outdoor Lighting Legislation (Luminaire)

- Outdoor lighting provisions are part of **S.1462** and **H.R. 5201**
- These should eventually be incorporated into even larger bills that cover either energy only – or climate change; probably energy
- Assuming passage, Tier 1 will be effective 3 years after the bill is passed
- Scope includes “Outdoor pole-mounted luminaires”
 - Covers area, roadway, highmast, dusk to dawn and decorative post-tops
 - Does NOT cover wall mounted, canopy, bollards or floods for first Tier
- Consensus bill is based on the NEMA LE-6 “Target Efficacy Rating (TER)”
 - TER describes what % of bare lamp lumens are received by a target area
 - This approach puts traditional light sources and solid state on a level playing field in terms of performance
- Dual level controls are required – but only for area lighting (not roadway)
- Compliance marking on luminaire and packaging



NEMA LE-6-2009 Luminaire Distributions

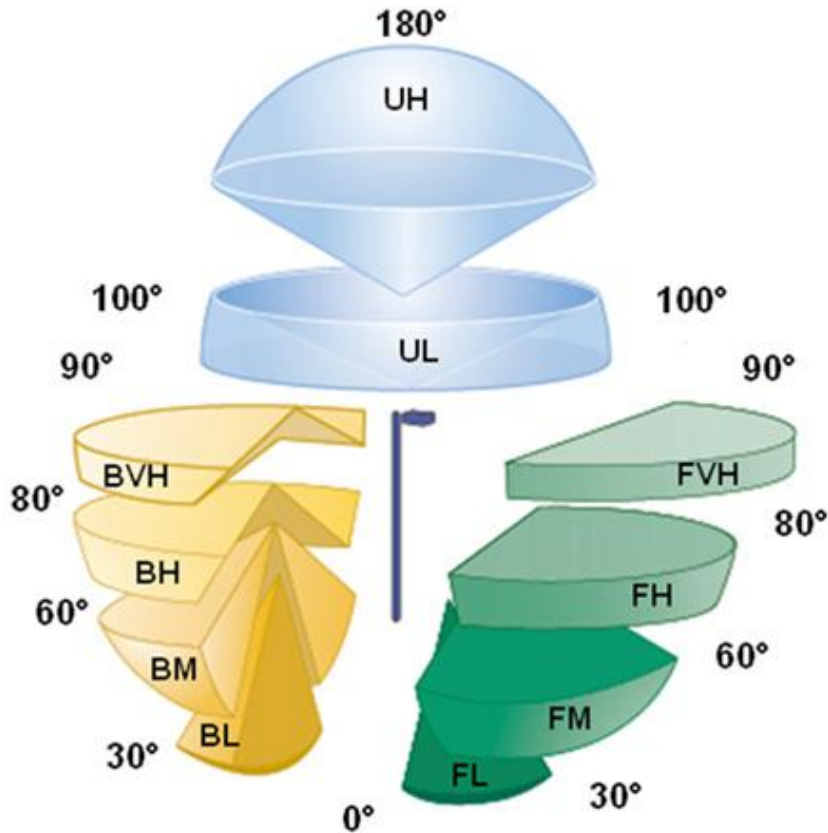


Lighting Zones

- **LZ0: No ambient lighting** Areas where the natural environment will be seriously and adversely affected by lighting. Impacts include disturbing the biological cycles of flora and fauna and/or detracting from human enjoyment and appreciation of the natural environment. Little or no lighting is expected. When not needed, lighting should be extinguished.
- **LZ1: Low ambient lighting** Areas where lighting might adversely affect flora and fauna or disturb the character of the area. The vision of human residents and users is adapted to low light levels. Lighting may be used for safety, security and/or convenience but it is not necessarily uniform or continuous. After curfew, most lighting should be extinguished or reduced as activity levels decline.
- **LZ2: Moderate ambient lighting** Areas of human activity where the vision of human residents and users is adapted to moderate light levels. Lighting may typically be used for safety, security and/or convenience but it is not necessarily uniform or continuous. After curfew, lighting may be extinguished or reduced as activity levels decline.
- **LZ3: Moderately high ambient lighting** Areas of human activity where the vision of human residents and users is adapted to moderately high light levels. Lighting is generally desired for safety, security and/or convenience and it is often uniform and/or continuous. After curfew, lighting may be extinguished or reduced in most areas as activity levels decline.
- **LZ4: High ambient lighting** Areas of human activity where the vision of human residents and users is adapted to high light levels. Lighting is generally considered necessary for safety, security and/or convenience and it is mostly uniform and/or continuous. After curfew, lighting may be extinguished or reduced in some areas as activity levels decline.



BUG Rating System from IES TM15-2007, Addendum A



Backlight, which creates light trespass onto adjacent sites. The **B** rating takes into account the amount of light in the BL, BM, BH and BVH zones, which are direction of the luminaire OPPOSITE from the area intended to be lighted.

Uplight, which causes artificial sky glow. **Lower uplight (zone UL)** causes the most sky glow and negatively affects professional and academic astronomy. **Upper uplight (UH)** is mostly energy waste. The **U** rating accounts the amount of light into the upper hemisphere with greater concern for the lower uplight angles in UL.

Glare, which can be annoying or visually disabling. The **G** rating takes into account the amount of frontlight in the FH and FVH zones as well as BH and BVH zones.

IES TM15 Defines Max Zonal Lumens Per Zone

Backlight Rating

Secondary Solid Angle	Backlight Rating					
	B0	B1	B2	B3	B4	B5
BH	110	500	1000	2500	5000	>5000
BM	220	1000	2500	5000	8500	>8500
BL	110	500	1000	2500	5000	>5000

Glare Rating for Asymmetrical Luminaire Types (Type I, Type II, Type III, Type IV)

Secondary Solid Angle	G0	G1	G2	G3	G4	G5
FVH	10	250	375	500	750	>750
BVH	10	250	375	500	750	>750
FH	660	1800	5000	7500	12000	>12000
BH	110	500	1000	2500	5000	>5000

Uplight Rating

Secondary Solid Angle	U0	U1	U2	U3	U4	U5
UH	0	10	100	500	1000	>1000
UL	0	10	100	500	1000	>1000
FVH	10	75	150	>150		
BVH	10	75	150	>150		

Glare Rating for Quadrilateral Symmetrical Luminaire Types (Type V, Type V Square)

Secondary Solid Angle	G0	G1	G2	G3	G4	G5
FVH	10	250	375	500	750	>750
BVH	10	250	375	500	750	>750
FH	660	1800	5000	7500	12000	>12000
BH	660	1800	5000	7500	12000	>12000

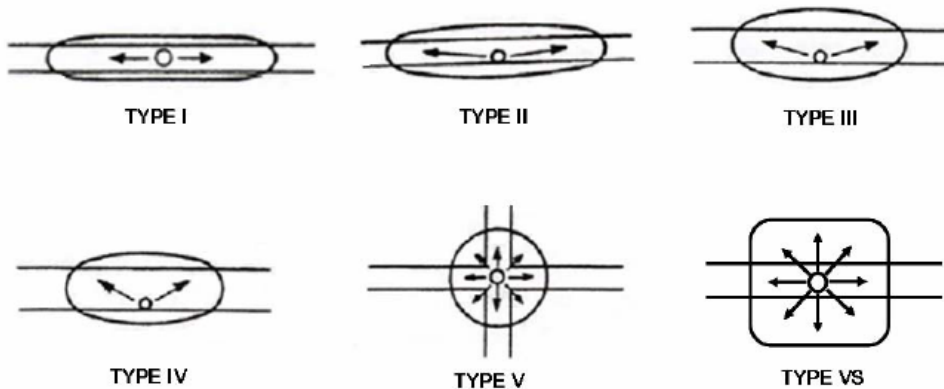


General meanings of the BUG system

	Maximum U or G 0 or 1	Maximum U or G 2 or 3	Maximum U or G 4 or 5
B 0	<ul style="list-style-type: none"> • Critical to dark sky areas • Critical to controlling light trespass 		<ul style="list-style-type: none"> • Critical to controlling light trespass in urban areas
B 1			
B 2 or 3	<ul style="list-style-type: none"> • Minimizes sky glow • Maximizes distribution of light 	<ul style="list-style-type: none"> • Maximizes distribution of light • Minimizes number of poles / cost 	
B 4 or 5			

BUG Ratings, Distribution, and LPW Relationships

Roadway Classifications



Type V distribution
11,755 lumens

B3 U5 G4
LPW = 55



Type V distribution
8,979 lumens

B2 U5 G1
LPW = 42



Type V distribution
6,196 lumens

B2 U0 G0
LPW = 29



250 watt MH

Type V distribution
16,339 lumens
297 watts

B4 U1 G2
LPW = 55



250 watt MH

Type IV SC distribution
10,865 lumens
297 watts

B1 U1 G2
LPW = 37



Type IV distribution
13,730 lumens
290 watts

B2 U2 G2
LPW = 47



The Consensus-Proposed “Task Efficacy” Limit

“Area, Roadway or Highmast luminaires

Backlight Rating	Maximum of Uplight or Glare rating		
	0 or 1	2 or 3	4 or 5
0 or 1	38	38	38
2 or 3	38	38	42
4 or 5	38	42	43

“Decorative Posttop or Dusk-to-Dawn luminaires

Backlight Rating	Maximum of Uplight or Glare rating		
	0 or 1	2 or 3	4 or 5
0 or 1	25	25	25
2 or 3	25	25	28
4 or 5	25	28	28;

- Task Efficacy Rating (TER) and Energy Effectiveness Factor (EEF) calculations are defined by NEMA LE-6-2009
- $TER = \text{initial rated lamp lumens} \times EER \times BF / \text{luminaire watts}$
- BUG ratings describe the backlight, uplight and glare of a luminaire defined by IES TM-15 Appendix A



In Summary....



Where does the IES stand?

The IES supports:

- Reduction in building energy use
- Increased use of daylighting and controls
- Transition to an energy-based metric for building performance
- Adoption of the latest version of Standard 90.1 (2010).
- The co-marketing of the ICC's IGCC and Standard 189.1 (as an optional compliance path)
- The general service incandescent lamp phase-out
- The adoption of the MLO by States and municipalities



Where does the IES stand?

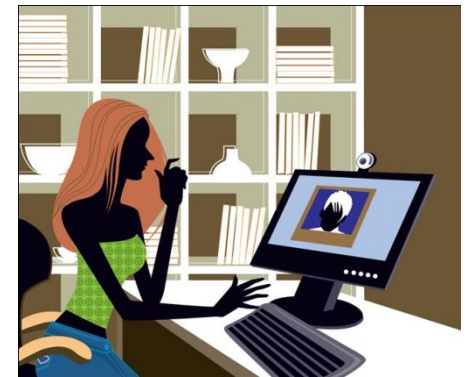
The IES does not support:

- Continued reduction in lighting power densities where it will affect lighting quality
- Component-based legislation
- Technology-based solutions



Useful Websites

- <http://www.house.gov> – U.S. House of Representatives
- <http://clerk.house.gov> – Clerk of the House of Representatives
- <http://senate.gov> – U.S. Senate
- <http://thomas.loc.gov> – Library of Congress
- <http://www.govtrack.us> – Track Bills and Congressional activity
- <http://www.nema.org> – NEMA
- <http://lumennow.org> – LUMEN Coalition
- <http://bcap-ocean.org> – Building Codes Assistance Project
- <http://www.usgbc.org> – U.S. Green Building Council
- <http://ase.org> – The Alliance to Save Energy
- <http://www.ashrae.org> - ASHRAE
- <http://www.ies.org> – Illuminating Engineering Society



Thank you for your attention!

