

# Page 23 - Table A

#7 - I propose two related changes to Section IX. Change the U in BUG to include only 90 – 180 degree lumens. The U in BUG includes UVH and BVH 80 – 90 degree lumens. I understand that there is some U impact from this zone, however, UVH and BVH are controlled through the G rating and including it in the U rating is redundant and confusing. Limiting the U rating to 90 – 180 degrees greatly improves the clarity and comprehensibility of the U rating. When U is limited to 90 – 180 degrees, a rating of U0 or U1 tells me that this is a fully shielded luminaire. Under the current system, a fully shielded luminaire could easily have a U2 or U3 rating based on light in the 80 – 90 degree zone. I think that is a fatal flaw that leads to much confusion. I want upright to mean upright and glare to mean glare.

ACCEPTED - TM-15 is being revised to de-couple the upright from the glare rating or including only the 90-180 degree lumens. Another improvement will be to have the G and U ratings match the lighting zone designation such that LZ1 = U1 and G1; LZ2 = U2 and G2, etc.

**Table A - Allowed Total Initial Luminaire Lumens per Site for Non-residential Outdoor Lighting, Per Parking Space Method**

May only be applied to properties up to 10 parking spaces (including handicapped accessible spaces).

LZ-0	LZ-1	LZ-2	LZ-3	LZ-4
<del>500</del> 350 lms/space	<del>700</del> 490 lms/space	<del>900</del> 630 lms/space	<del>1,200</del> 840 lms/space	<del>1,500</del> 1,050 lms/space

25 - We believe that the total site lumen limits in Tables A and B are excessive. We have seen calculations suggesting that, outside of LZ 0, these are well above even "enhanced security" IES recommendations. Even in LZ 4, we see no reason for assigning "enhanced security" light levels to every site.

We have also reviewed data from the 2002 Pier report suggesting that, in a substantial proportion of cases, existing parking lots are lighted to levels below RP-20-98. This suggests that IES is already recommending more light than many users actually find necessary, so MLO allowances should certainly not exceed RP levels.

Rejected - The lumen limits are based on a mapping of IES criteria. Enhanced security levels are met in LZ4. The 2002 PIER report does recognize that many existing sites do not meet IES criteria, but does not support this. Lighting zones help municipalities in establishing the ambient lighting levels appropriate for the community

#22 - Table A - Allowed Total Initial Lumens per Site for Nonresidential Outdoor Lighting, Per Parking Space Method May only be applied to properties up to 10 parking spaces (including handicapped accessible spaces).

LZ-0	LZ-1	LZ-2	LZ-3	LZ-4
<del>500</del> 550 lms/space	<del>700</del> 900 lms/space	<del>900</del> 1,500 lms/space	<del>1,200</del> 3,000 lms/space	<del>1,500</del> 4,500 lms/space

REASONS: - In section IV. NON-RESIDENTIAL LIGHTING (Cont.) on page 12, the Prescriptive method – total site lumen limit there is the option to use either table the Parking Space Method (Table A) or the Hardscape Area Method (Table B). Unfortunately the lumen per parking spot limit doesn't allow enough light to meet IES recommended light levels. As an example, Zone 3 the current Table A method provides 1/5 the recommended minimum light level.

Additionally, the designer could just use the Hardscape Area Method (Table B). Comparing the lumens allowed in Table A they do not equate to Table B allowances. A typical parking spot is 9 x 18 feet, but the driveway access must also be included. The typical driveway area per parking spot is 9x24 for a single row of parking for a total square footage of 378. Using Table B the allowed lumens per space should be 567 lumens for Zone 0, 945 lumens for Zone 1, 1512 lumens for Zone 2, 3024 lumens for Zone 3 and 4536 lumens for Zone 4.

If you want anyone to use Table A, make the lumens comparable to Table B..

Accepted in Part: Our calculations come up with different results. A single row of parking with a 9' X 24' wide aisle = 216 SF, not 378 as the comment states. LZ-3 and LZ-4 values are increased slightly to accommodate a 9 X 24 area.

29 - Table A - Request: Do not stair-step lumen limits for higher LZs. Establish a very strict limit for LZ-0 and a single, slightly greater allowance for illuminance in LZ 1, 2, and 3.

Rationale: I have yet to hear a cogent argument to justify why parking-lot lighting needs to be greater in more urban environments than in residential ones. We must strive, everywhere, for the minimum level needed for adequate safety and security.

Request: Change the levels to lumens per ft2 instead of lumens per space.

Rationale: Even within a single jurisdiction, the dimensions of parking-lot spaces will vary from project to project.

Rejected - Lighting Zones allow municipalities to adopt a zone appropriate for community. Even in large cities, the lumens per space may be used for smaller projects where the parking lot is adjacent to the street with no driveways.

**Table B - Allowed ~~Total Initial Luminaire~~ Lumens per SF  
Site for Non-residential Outdoor Lighting, Hardscape Area Method**

May be used for any project. When lighting intersections of site drives and public streets or road, a total of 600 square feet for each intersection may be added to the actual site hardscape area to provide for intersection lighting.

	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
<b>Base Allowance of lumens per SF of Hardscape</b>	0.5	1.25	2.5	5.0	7.5
<b>Additional allowances for sales and service facilities. No more than two additional allowances per site, Use it or Lose it.</b>					
<b>Outdoor Sales Lots.</b> This allowance is lumens per square foot of uncovered sales lots used exclusively for the display of vehicles or other merchandise for sale, and may not include driveways, parking or other non sales areas. To use this allowance, luminaires must be within 2 mounting heights of sales lot area.	0	4 lumens per square foot	8 lumens per square foot	16 lumens per square foot	16 lumens per square foot
<b>Outdoor Sales Frontage.</b> This allowance is for lineal feet of sales frontage immediately adjacent to the principal viewing location(s) and unobstructed for its viewing length. A corner sales lot may include two adjacent sides provided that a different principal viewing location exists for each side. In order to use this allowance, luminaires must be located between the principal viewing location and the frontage outdoor sales area	0	0	1,000 per LF	1,500 per LF	2,000 per LF
<b>Drive Up Windows.</b> In order to use this allowance, luminaires must be within 20 feet horizontal distance of the center of the window.	0	2,000 lumens per drive-up window	4,000 lumens per drive-up window	8,000 lumens per drive-up window	8,000 lumens per drive-up window
<b>Vehicle Service Station.</b> This allowance is lumens per installed fuel pump.	0	4,000 lumens per pump (based on 5 fc horiz)	8,000 lumens per pump (based on 10 fc horiz)	16,000 lumens per pump (based on 20 fc horiz)	24,000 lumens per pump (based on 20 fc horiz)

## Page 23 - Old Table B

LZ-0	LZ-1	LZ-2	LZ-3	LZ-4
<del>1.5</del> 0.5 lu per SF of hardscape	<del>2.5</del> 1.5 lu per SF of hardscape	<del>4.0</del> 2.5 lu per SF of hardscape	<del>8.0</del> 5.5 lu per SF of hardscape	<del>12.0</del> 7.5 lu per SF of hardscape

#19 - Table B - Request: Do not stair-step lumen limits for higher LZs. Establish a very strict limit for LZ-0 and a single, slightly greater allowance for illuminance in LZ 1, 2, and 3. Rationale: I have yet to hear a cogent argument to justify why hardscape lighting needs to be greater in more urban environments than in residential ones. We must strive, everywhere, for the minimum level needed for adequate safety and security. Also, these levels seems higher than those in Table D.

25 - We believe that the total site lumen limits in Tables A and B are excessive. We have seen calculations suggesting that, outside of LZ 0, these are well above even "enhanced security" IES recommendations. Even in LZ 4, we see no reason for assigning "enhanced security" light levels to every site.

We have also reviewed data from the 2002 Pier report suggesting that, in a substantial proportion of cases, existing parking lots are lighted to levels below RP-20-98. This suggests that IES is already recommending more light than many users actually find necessary, so MLO allowances should certainly not exceed RP level.

**REJECTED - See Response Regarding Table A.**