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EC70-2221 A Guide for Planning Residential Lighting : The Total Lumen Method

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EC 70-2221

A GUIDE FOR PLANNING RESIDENTIAL LIGHTING

The Total Lumen Method 1/

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The amount of light generated by a bulb or tube at the light source is called a lumen. Taking the total light output into consideration is a helpful guide when designing room lighting. The lumen count method assures one of the quantity of light. To be successful, careful thought must also be given to the quality of lighting.

Room surfaces will affect the lumens needed. Light colors reflect light; dark colors absorb light. More lumens are needed in a room with dark walls or furnishings. The following are recommended reflectance values:

Ceiling 60 - 85%; walls 35 - 60%; floors 25 - 35%

THE METHOD

1. Determine the total light required. Multiply room area by lumen level recommended for the room (see data). (Length X width X lumens = total light).
2. Provide for general lighting from fixtures or from structural lighting such as valances, brackets or other. Figure lumens from each bulb or tube (see data).
3. Select lighting for areas and tasks. Again figure lumens from each bulb or tube.
4. Total lumens of #2 and #3 should be at least the amount in #1. This assures quantity. Also check for quality of light.

DATA

1. Lumens Required Per Square Foot (Recommended Minimum)

Living Room	80	Bedroom	70
Dining Room	45	Hallway	45
Kitchen	80	Laundry	70
Bathroom	65	Work Bench	70

1/ Adapted from material from General Electric by Magdalene Pfister, Extension Specialist, Home Furnishing.

EXTENSION SERVICE, UNIVERSITY OF NEBRASKA
COLLEGE OF AGRICULTURE AND HOME ECONOMICS AND
U. S. DEPARTMENT OF AGRICULTURE COOPERATING
E. F. FROLIK, DEAN J. L. ADAMS, DIRECTOR

2. Lumen Output

INCANDESCENT		FLUORESCENT		
Watts	Lumens	Watts	Diam. x Length	Lumens
60	840	15	1" x 18"	500
75	1150	20	1½" x 24"	690
100	1640	30	1" x 36"	1200
150	2700	30	1½" x 36"	1350
200	3700	40	1½" x 48"	1840
30/70/100	300/980/1200			
50/100/150	610/1520/2130			
30/200/230	270/3250/3520			
100/200/300	1410/3250/4660			

SPOTS OR FLOODS	
Watts	Lumens
30	200
75	750
150	1730

CHECK QUALITY OF LIGHT

Quality depends upon:

Placement of Equipment: - For use - functional, general and decorative
accent lighting - for decorative balance.

Shielding: - For visual comfort - to direct the light where needed, including both upward and downward distribution within an area.

Control and Flexibility: - In the intensity of light, its direction and color; or in the adjustment of equipment position. Can it change the atmosphere, be functional, be bright, or be restful...meet needs and moods?

Over-all Effect: - Can the eye see easily and quickly? Are there large areas of low brightness lighting on backgrounds, pools of focal light, interest and sparkle to please the eye?

Housepower: - Be sure the home is wired for the job.

DO YOUR FIGURING HERE