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Designers Lighting Forum

The Art of Landscape Lighting

Janet Lennox Moyer
FIALD, AOLP COLD, Founder
International Landscape Lighting Institute

AIA

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

Learning Objectives

At the end of this course, participants will be able to:

1. Identify good vs. bad practice and techniques
2. Compare techniques that aid vs. those creating glare
3. Describe the important issues that make landscape lighting successful
4. Analyze how to avoid pitfalls

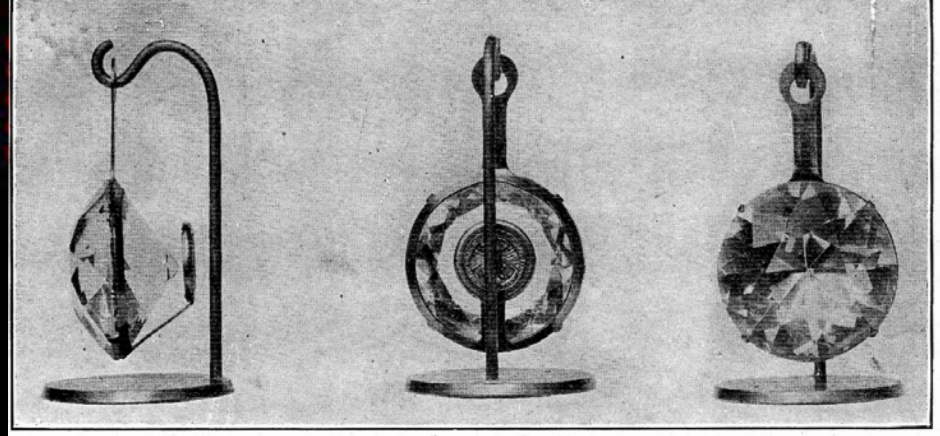

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FIG. 1—NOVAGEMS MOUNTED IN BRASS HOLDER

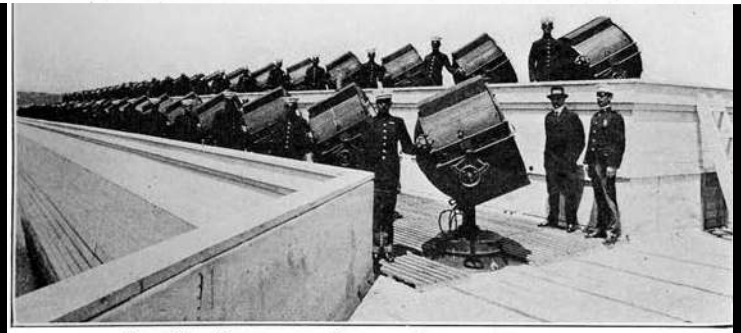
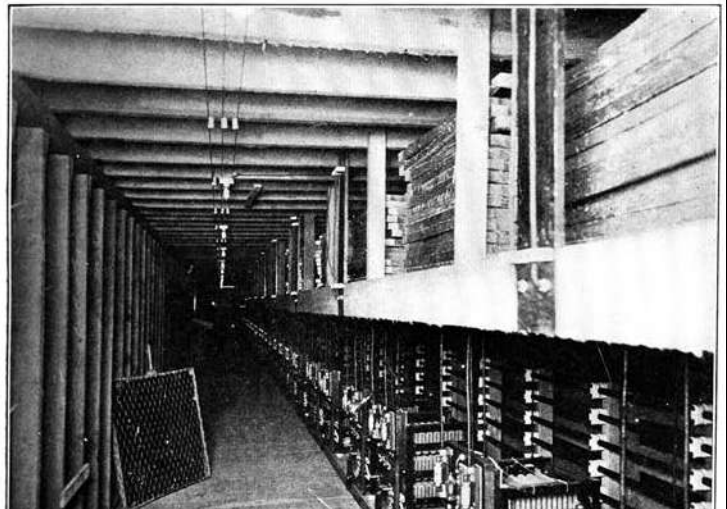


FIG. 35—ELECTRIC—COLOR—STEAM—SCINTILLATOR



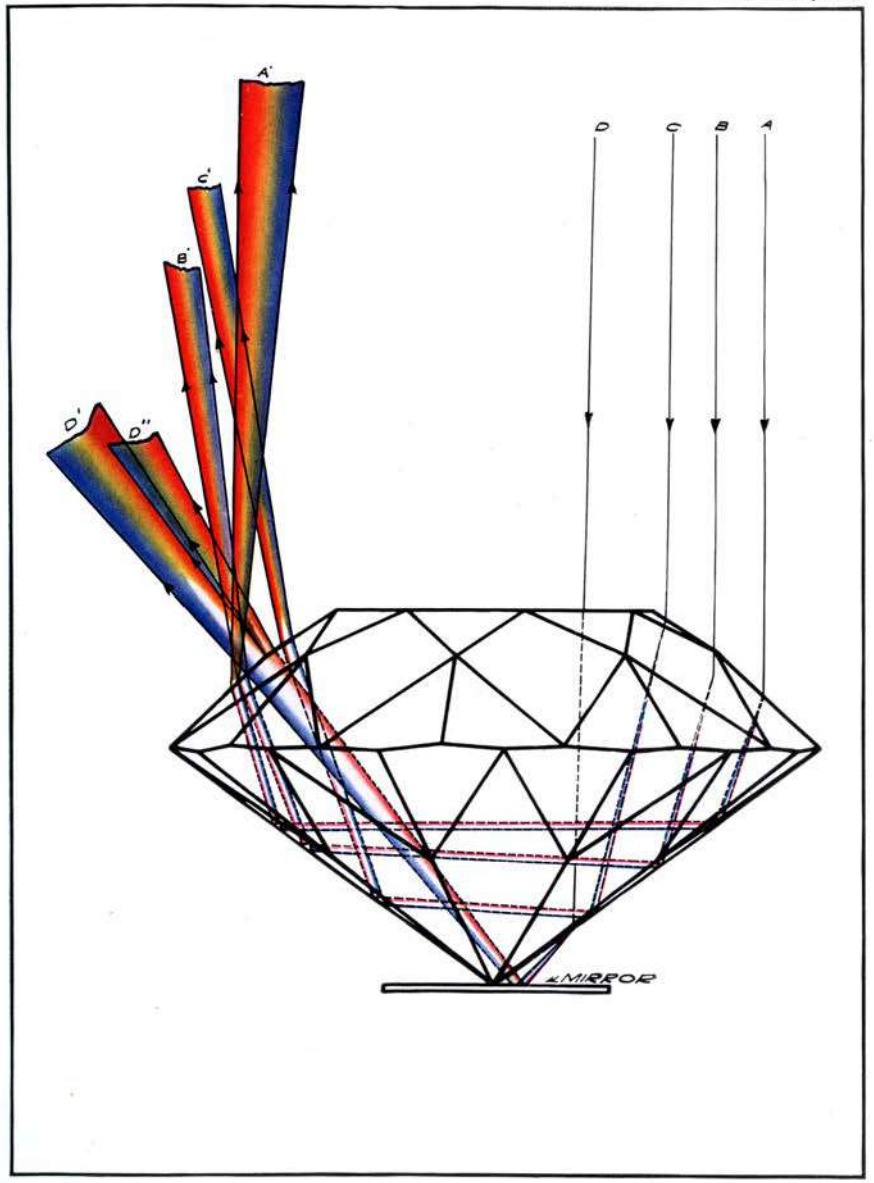


Fig. 2—Breaking Up of Incident Light Passing Through Novagem Jewels

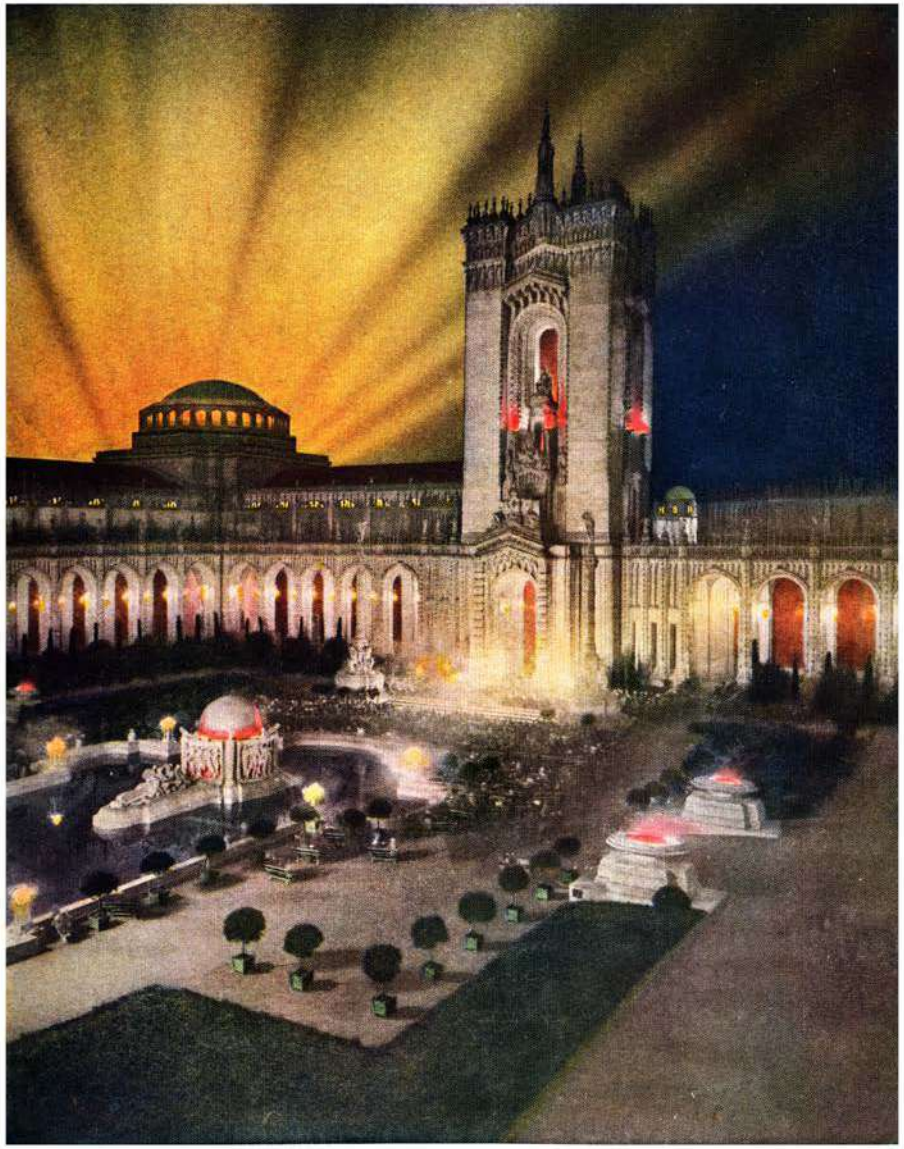


Fig. 45—A Section of Court of Abundance

Showing the Organ Tower and Aitken Fountain, with steam caldrons and fiery serpent flambeaux—In addition to the happy effect of the orange colored cloister lanterns, the flaring gas and ruby steam caldrons and torches on the tower did much to heighten the feeling of mystery in this court at night

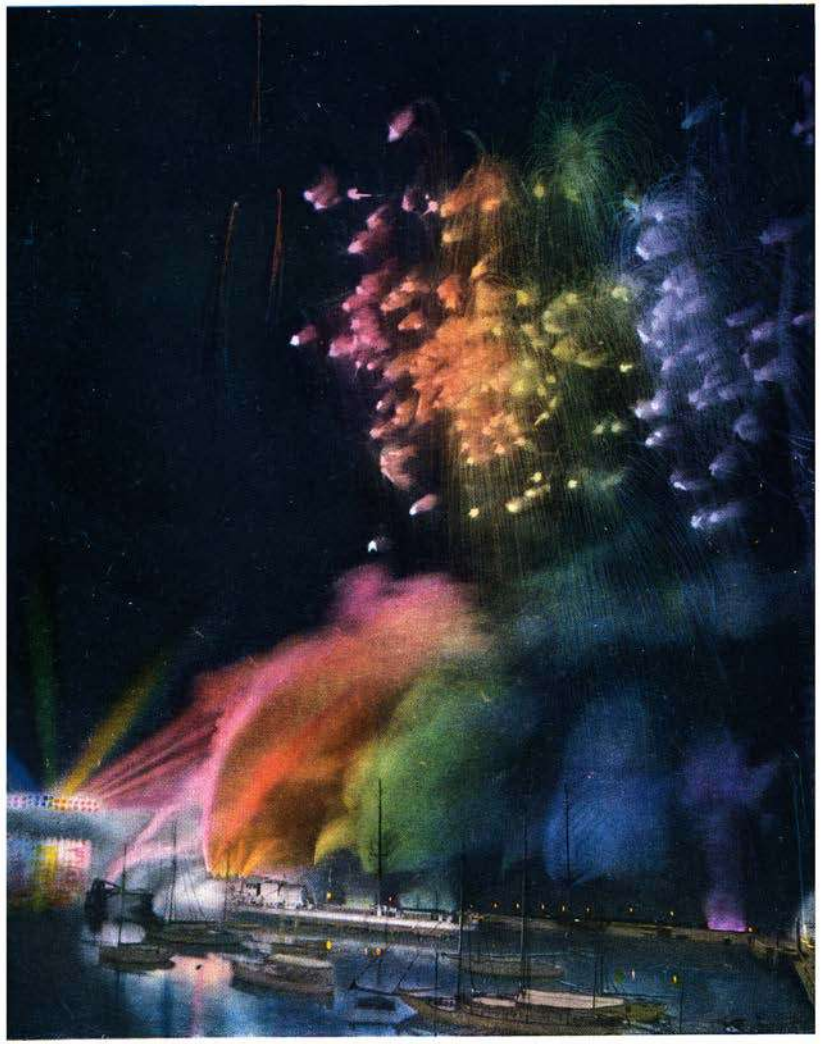
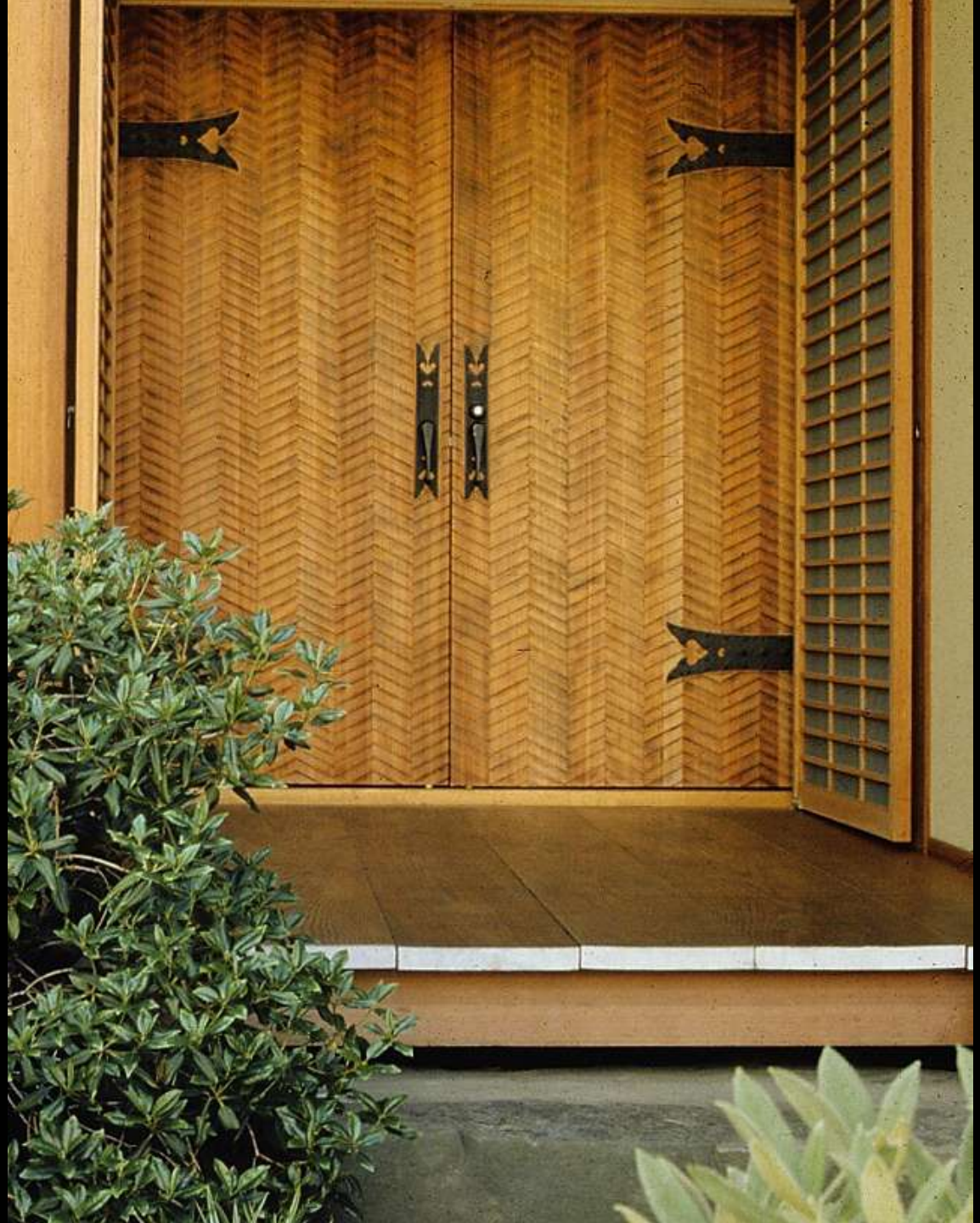


Fig. 63—The Electric-Steam Color Scintillator

Taken at the time of the firing of the Zone salvo



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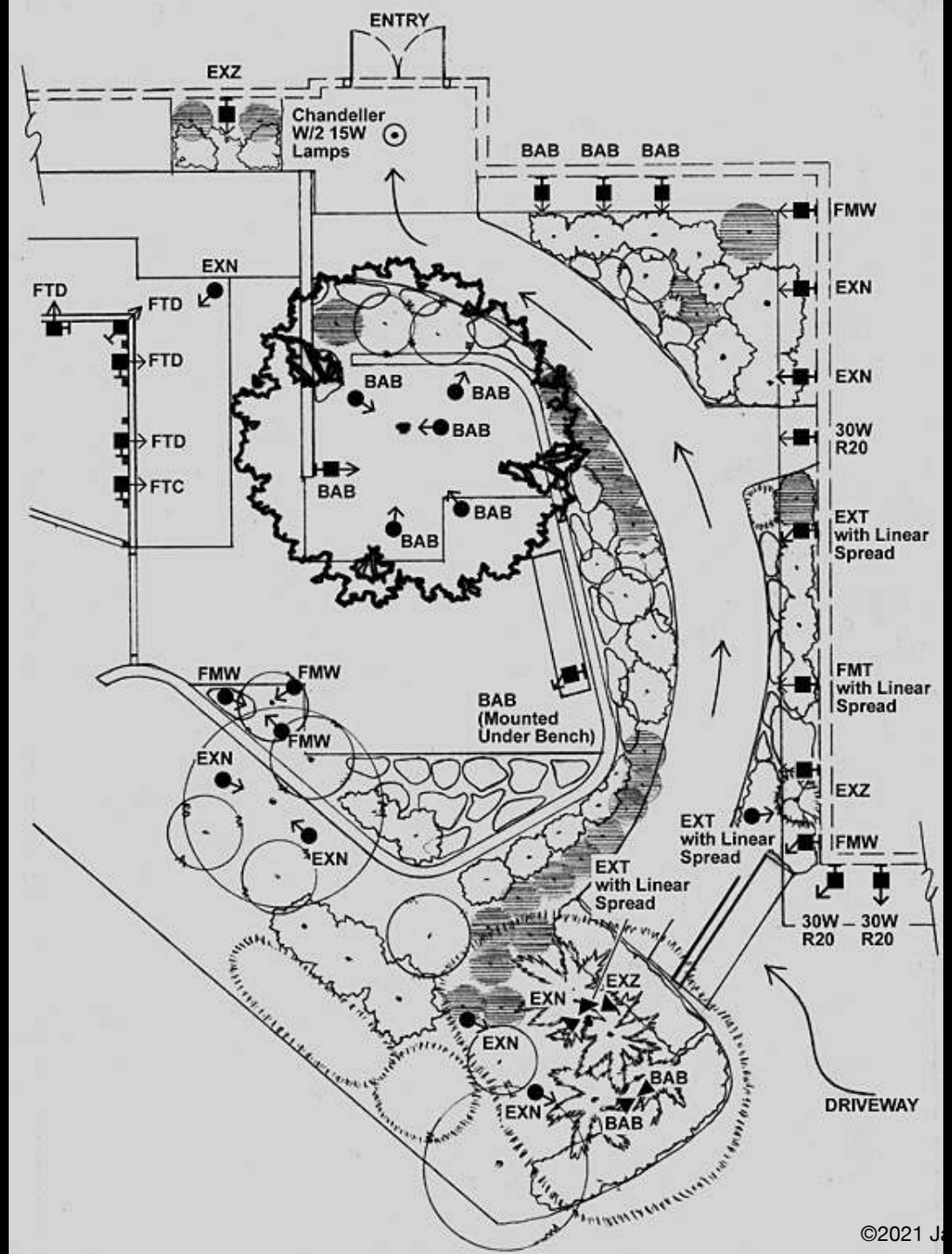
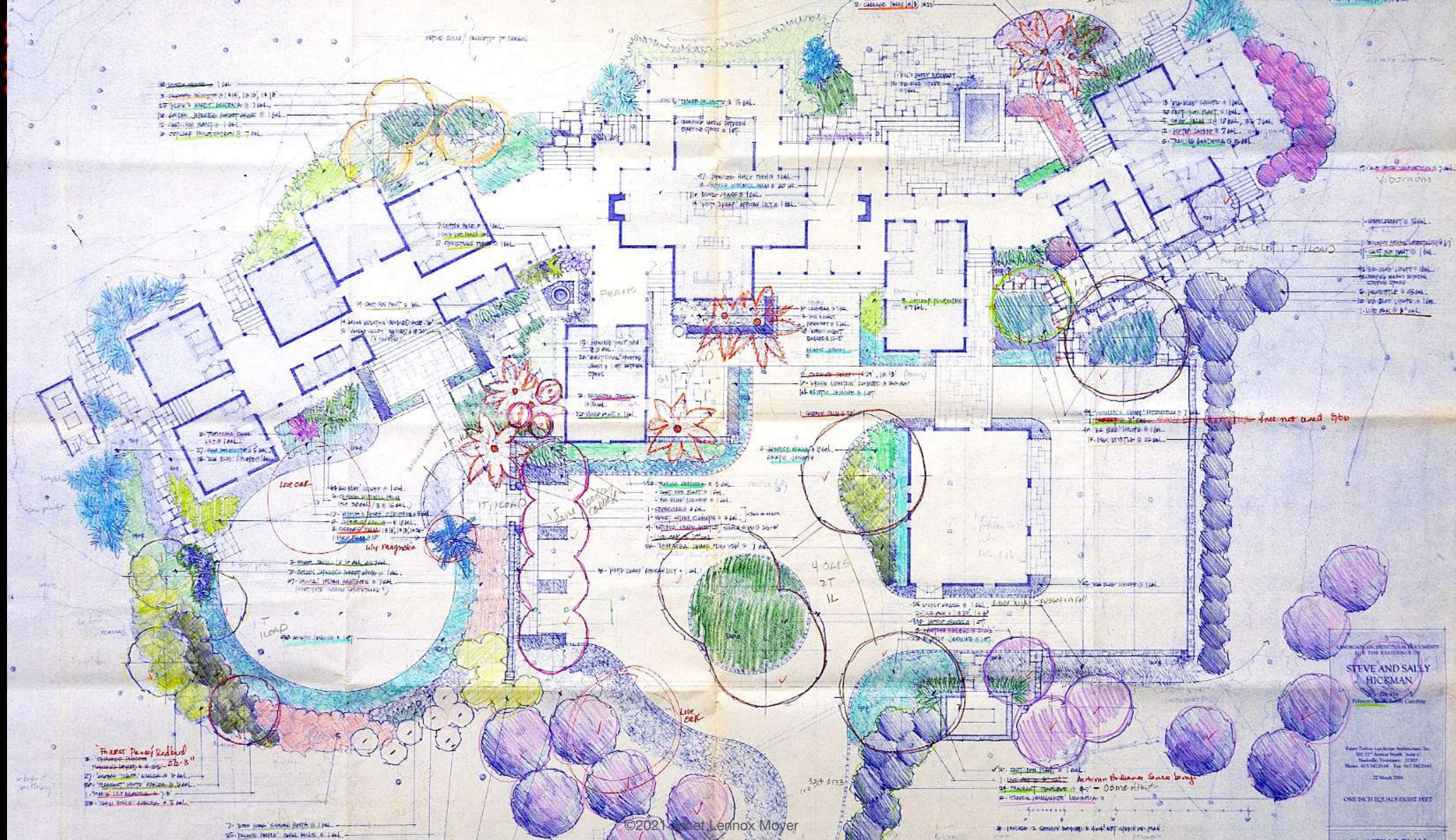

ENTRY
EXZ
Chandeller
W/2 15W
Lamps
BAB BAB BAB
FMW
EXN
EXN
EXN
30W
R20
EXT
with Linear
Spread
FMT
with Linear
Spread
EXZ
FMW
30W – 30W
R20 R20
DRIVEWAY
FTD
FTD
FTD
FTD
FTC
EXN
BAB
BAB
BAB
BAB
BAB
BAB
(Mounted
Under Bench)
FMW
FMW
FMW
EXN
EXN
EXT
with Linear
Spread
EXT
with Linear
Spread
EXZ
EXN
EXN
EXN
BAB
BAB

This pair of palms draws attention to the entry area,
provides ‘weight’ on the left side of this composition,
& reveals the trunk texture & canopy elements



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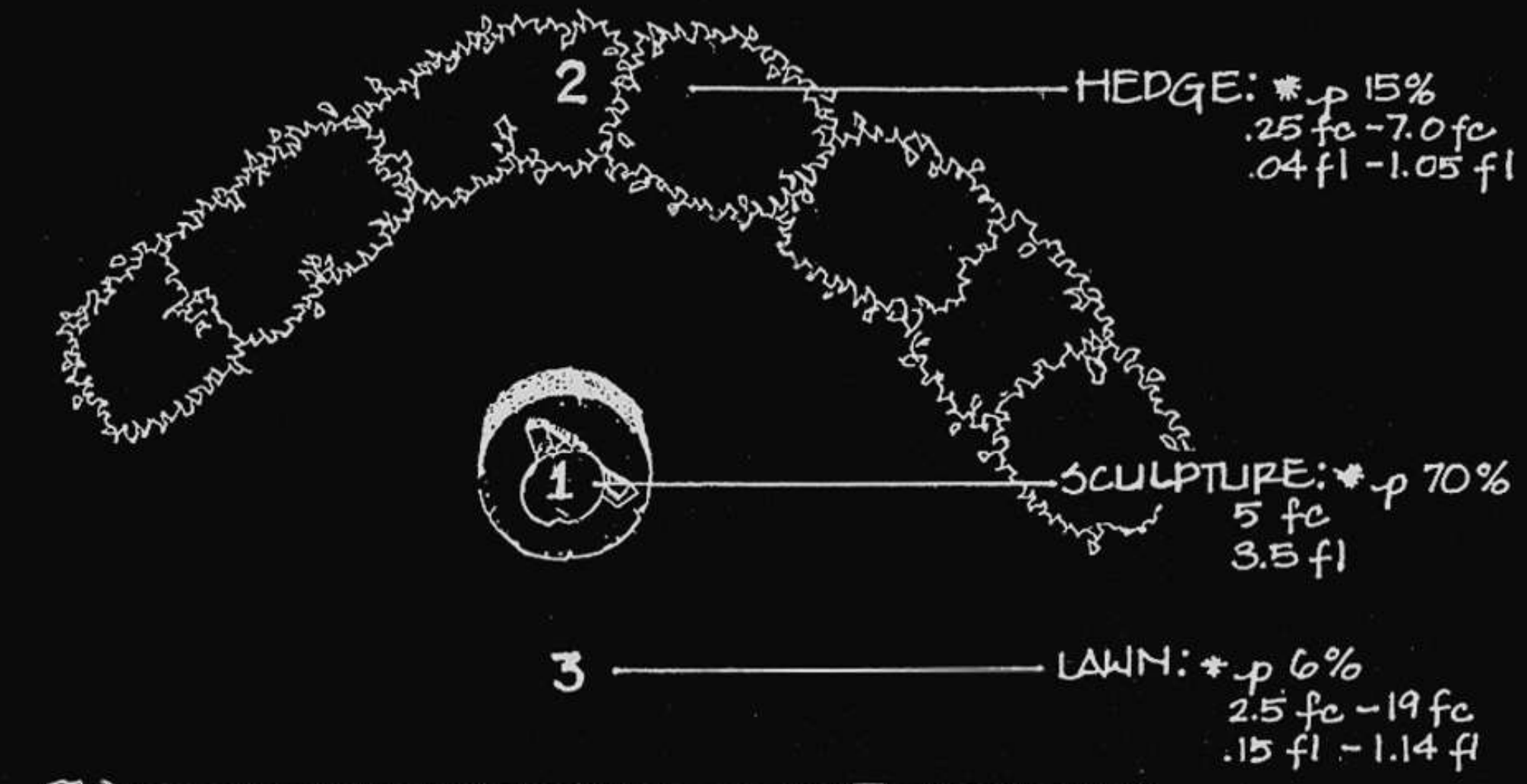
So , what happens when you relamp with an LED retrofit lamp?

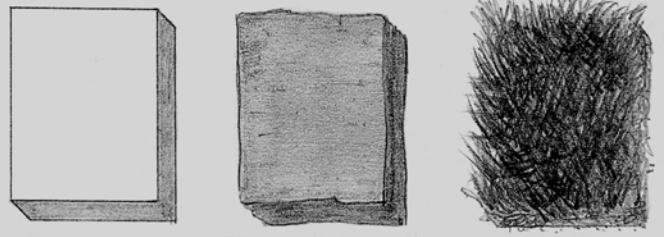


*p = Reflectance

REFLECTANCES OF BUILDING MATERIALS AND OUTSIDE SURFACES

Materials		*Reflectance (percent)*
Brick	light buff	48
	dark buff	40
	dark red glazed	30
Cement		27
Marble	(white)	45
Paint	(white)	
	new	75
	old	55
Glass	clear	7
	reflective	20–30
	tinted	7
Asphalt	(free from dirt)	7
Earth	(moist cultivated)	7
Granolite pavement		17
Grass	(dark green)	6
Macadam		18
Slate	(dark clay)	18
Snow	new	74
	old	64
Vegetation	(mean)	25
Bluestone, sandstone		18

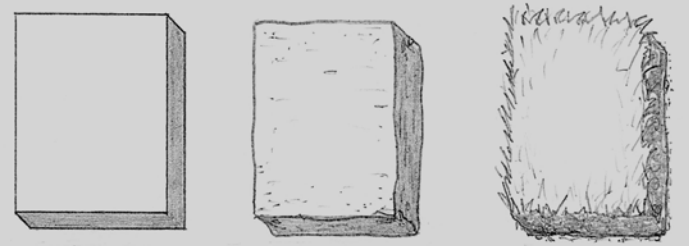
EACH MATERIAL LIT WITH 100 FC



White Paint	Concrete	Grass
75% p	40% p	6% p
Reflects: 75 fl	40 fl	6 fl

*p = Reflectance

TO MAKE EACH MATERIAL PRODUCE A SIMILAR BRIGHTNESS



White Paint	Concrete	Grass
13.33 fc	25 fc	166.67 fc
Reflects: 10 fl	10 fl	10 fl

LIGHT LEVELS*

CONTRIBUTION FROM FULL MOON	0.01 – 0.02	FC
DAYLIGHT		
At North Window	50 – 200	FC
Outdoor Shade	100 – 1000	FC
Direct Sunlight	5000 – 10000	FC
Office Lighting	30 – 100	FC
STREET LIGHTING		
Commercial	0.5 – 1 **	FC
Residential	0.25 – 0.75 **	FC
SIDEWALKS		
Commercial	1 – 5 ***	FC
Residential	0.25	FC

* Light levels in landscapes at night contrast dramatically with daylight levels and typical average interior night light levels.

** Calculated to be average maintained levels.

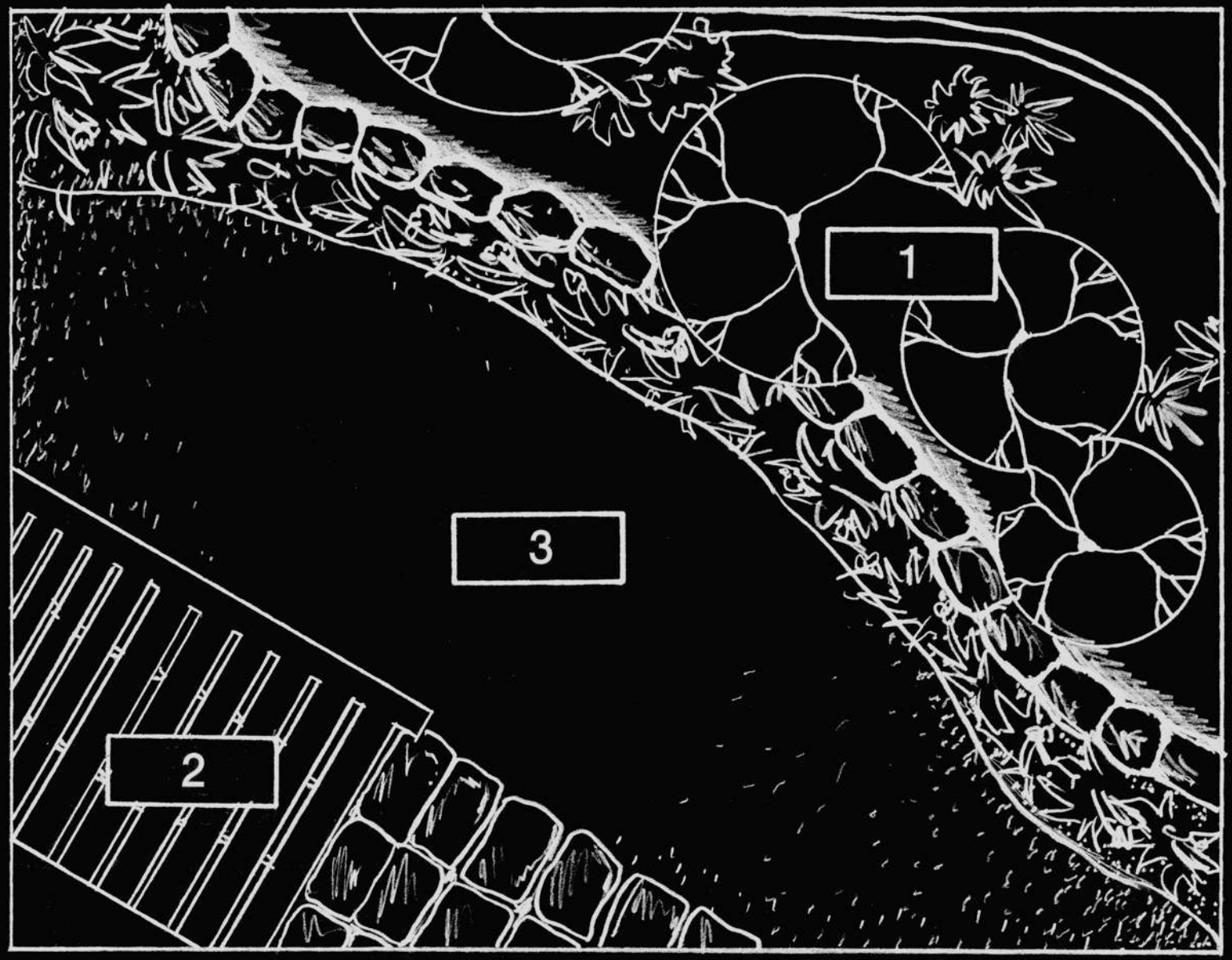
*** Municipalities often require minimum levels. The level varies throughout the U.S. Procure local regulations.

LUMINANCE RATIOS: *Brightness Difference Between Two Objects or Areas in Exterior Environments*

2:I	Edge of perceptible contrast; not enough difference to attract attention to a focal point
3:1 – 5:1	Range of acceptable contrast between primary and secondary focal points
Up to 10:1	Range of acceptable contrast between primary focal point and fill or surround light for exterior areas with low ambient lighting
Up to 100:1	Range of acceptable contrast between primary focal point and fill or surround light for interiors or areas with high ambient lighting
100:1 – 1000:1	Range of contrast between street and surround

LUMINANCE OF SKY

Overcast with moon	0.001	Footlamberts
Clear moonlight	0.01	Footlamberts
Deep twilight	0.1	Footlamberts



PLAN VIEW

1. Background
2. Foreground
3. Midground

Changed to LED June 2013

Traditional versus Shielded Fixtures - Traditional versus LED Lamps

Have we forgotten all we have learned about lamp source glare over the many years of fixture development?

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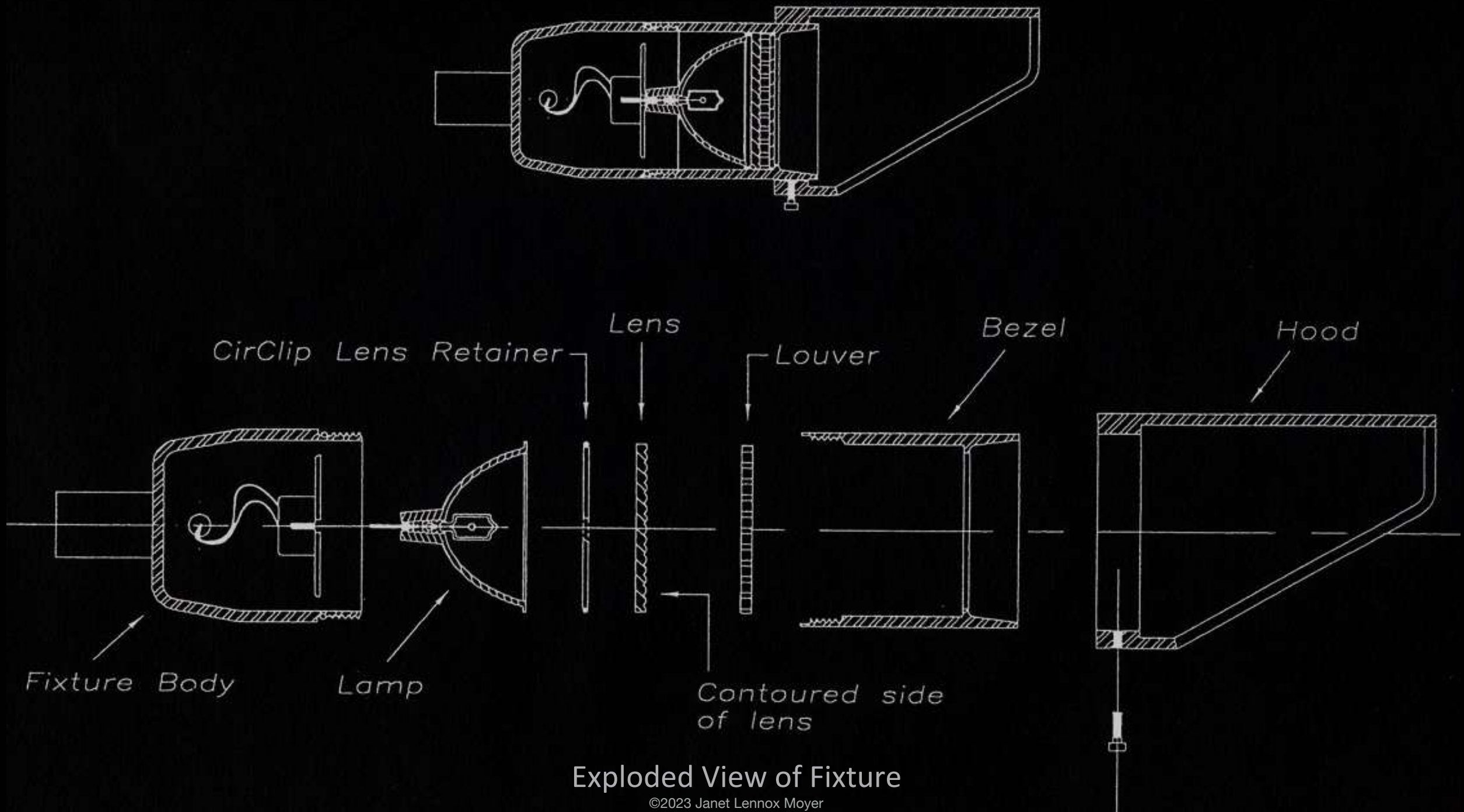
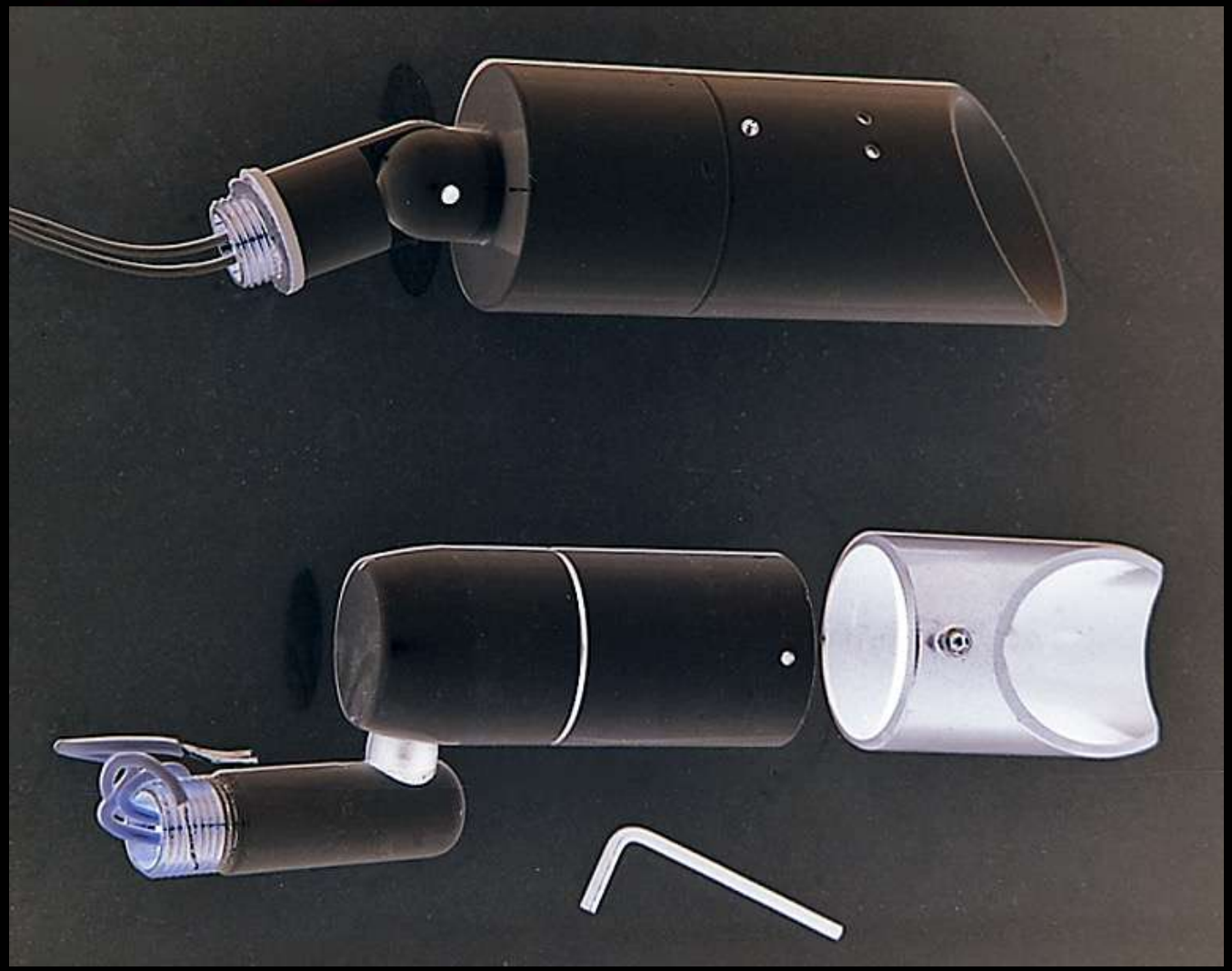
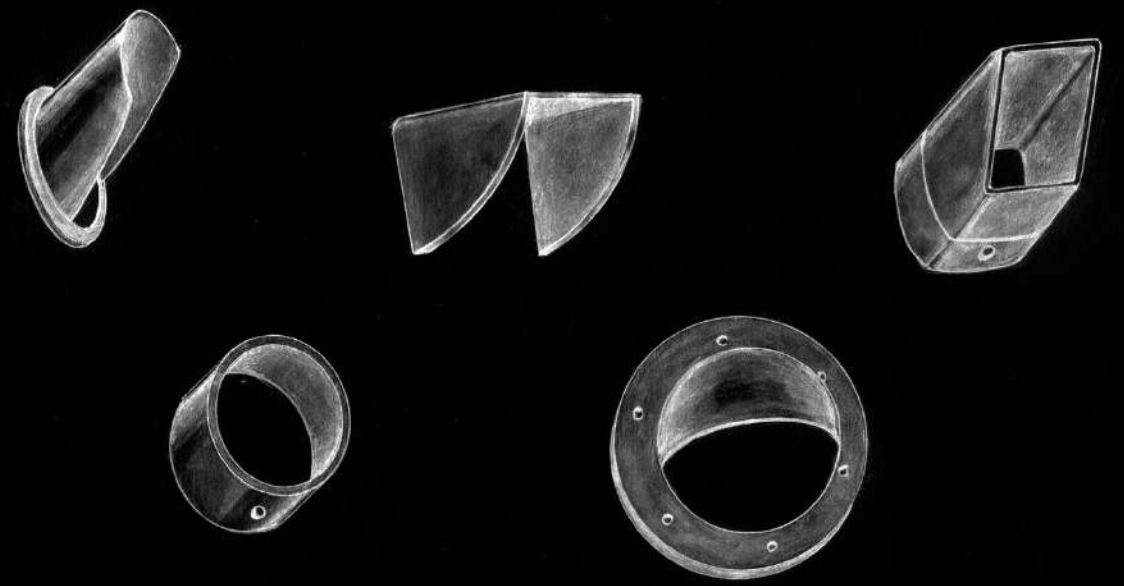


Exploded View of Fixture

Louvers — for controlling lamp brightness within the fixture housing





Integral hood versus as an accessory

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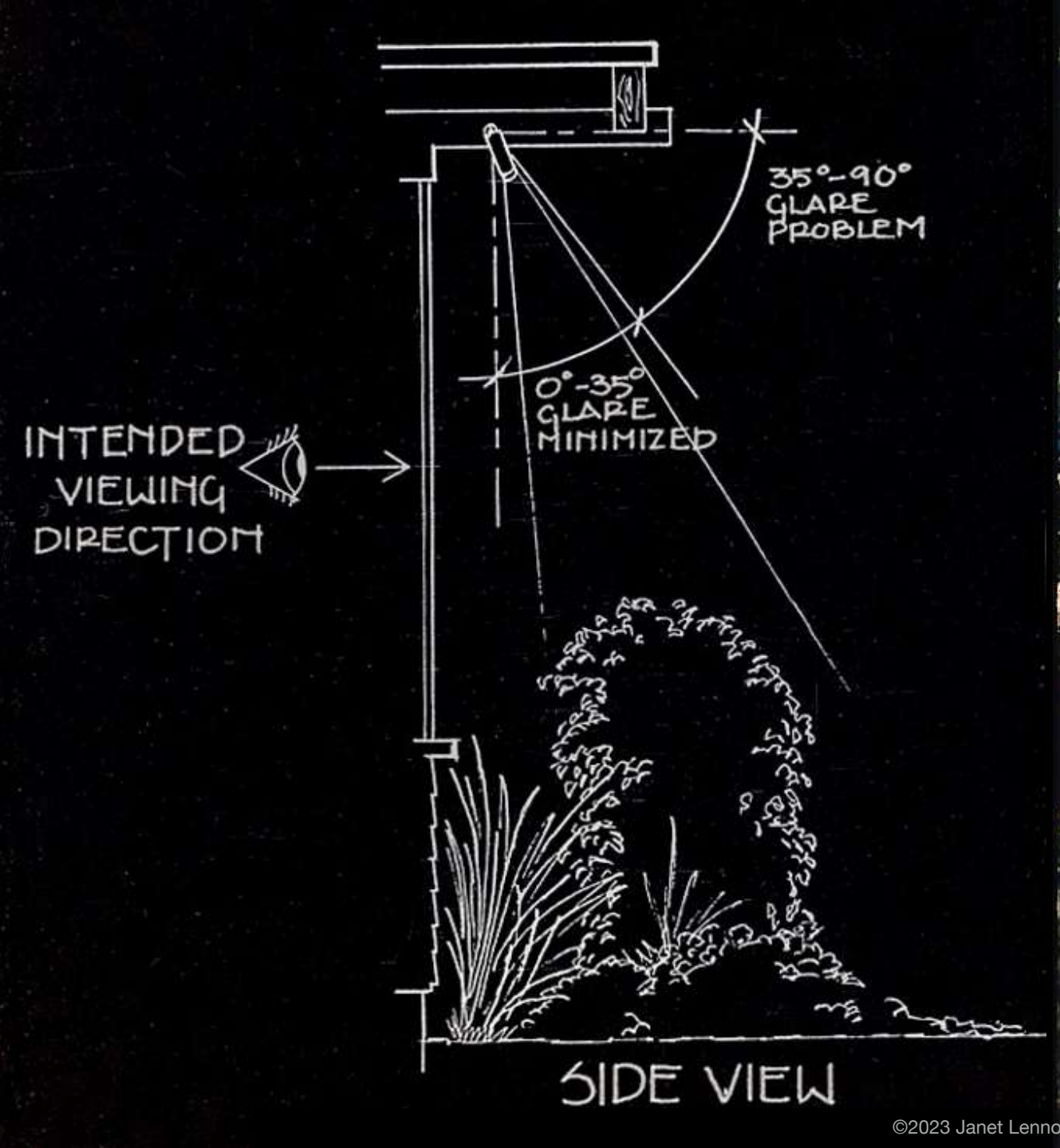


Originally specified LED fixture, Type F, in February

In April, when the project bidding occurred, the fixture had been replaced by the new Type F fixture with integral fixture dimming or ‘tuning’, but note that the lens location has changed and the shielding is gone.

We had to call the manufacturer, have them come out to the site to see the installation of these new fixtures in the Landscape Lighting Exhibition so that they could see the shielding concerns.

During the installation & aiming of LLE, the team had to fabricate a temporary black glare shield covering both sides and along the front to block view of the lens. The new shields from the manuf

Changing from Halogen to LED requires more planning than looking at Candlepower and beam spread.
The light from LED is so different from our old technology.

Halogen sources

At left, both top & bottom
Are
Quercus agrifolia /
California Live Oak

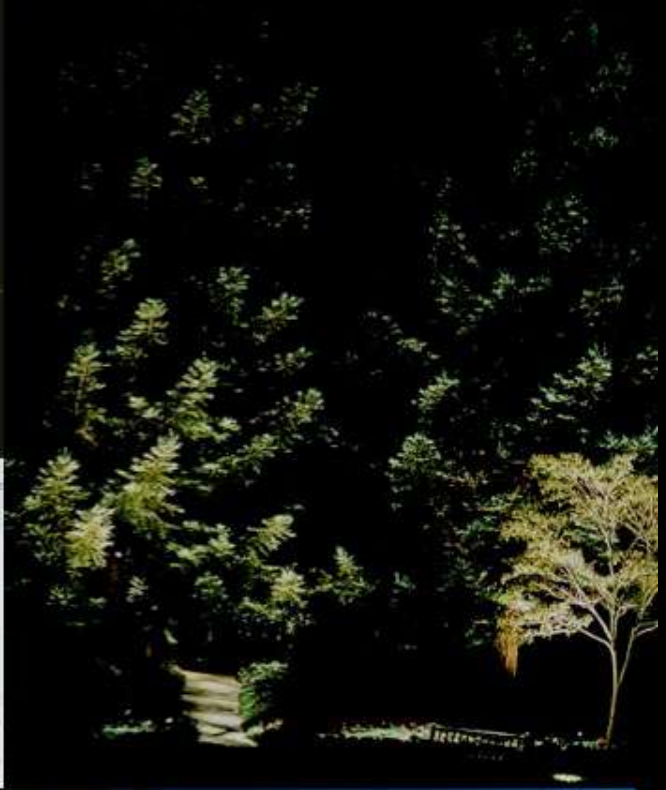
At right is
An Australian Fig Tree

Here, at right is a
Quercus virginiana
Or Southern Oak

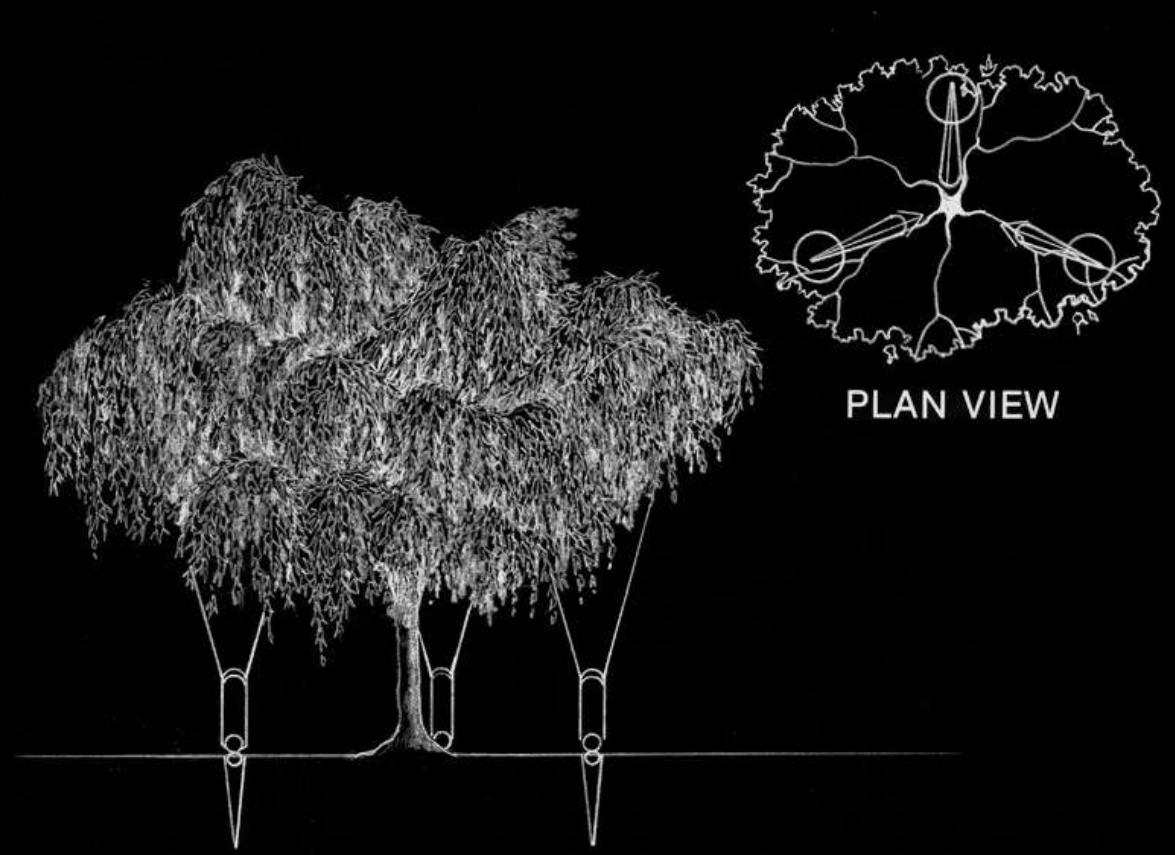
Dense Canopy -
Acer platanoides
/Norway Maple

Open Canopy -

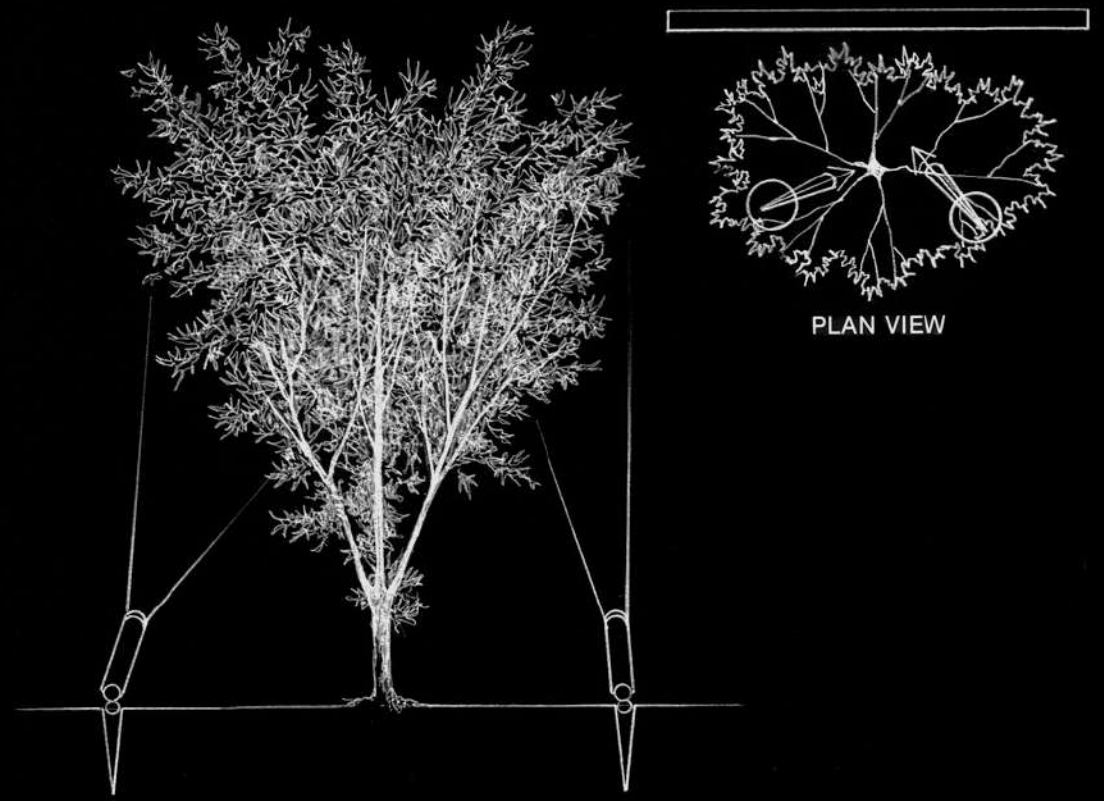
Caesalpinea ferrea
Brazilian Ironwood

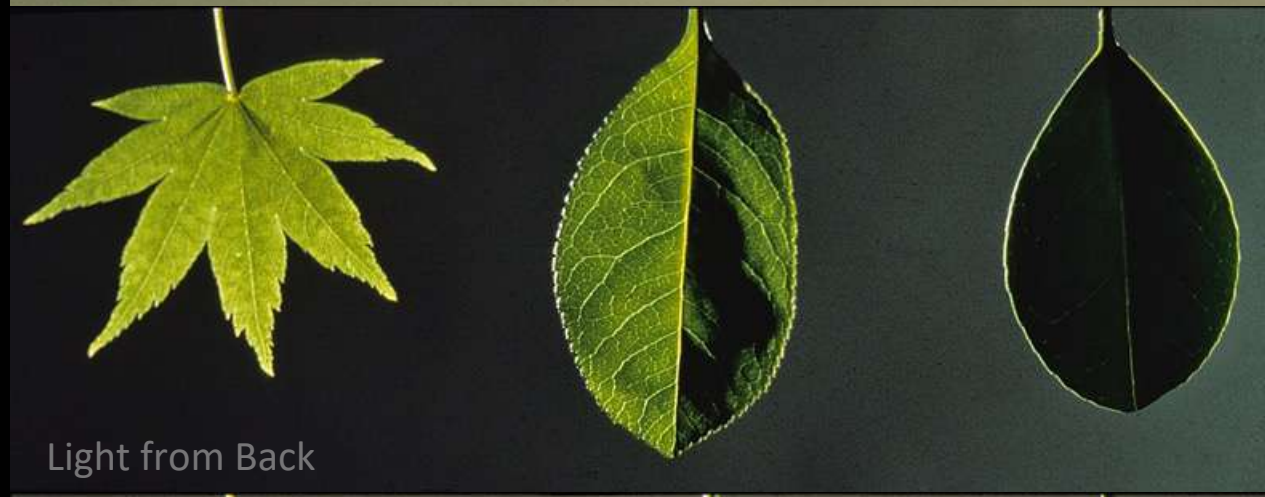


•To reveal three-dimensional qualities of a tree, use a minimum of three fixtures



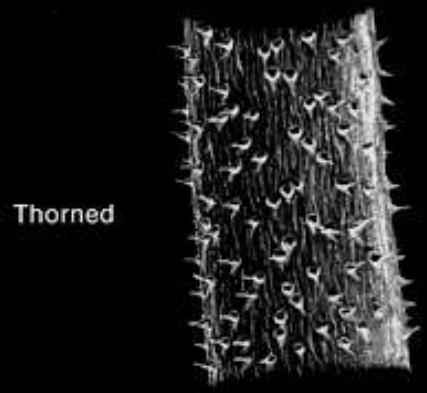
•Vertical form or placement near a wall may allow using less then three fixtures





Light from Back

Light from Front & Back

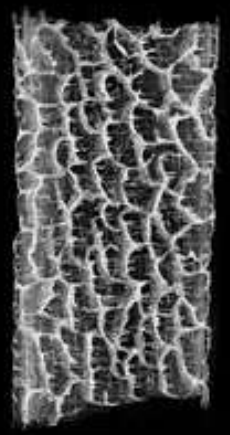


Chorisia speciosa

Prunus serrula

Betula nigra

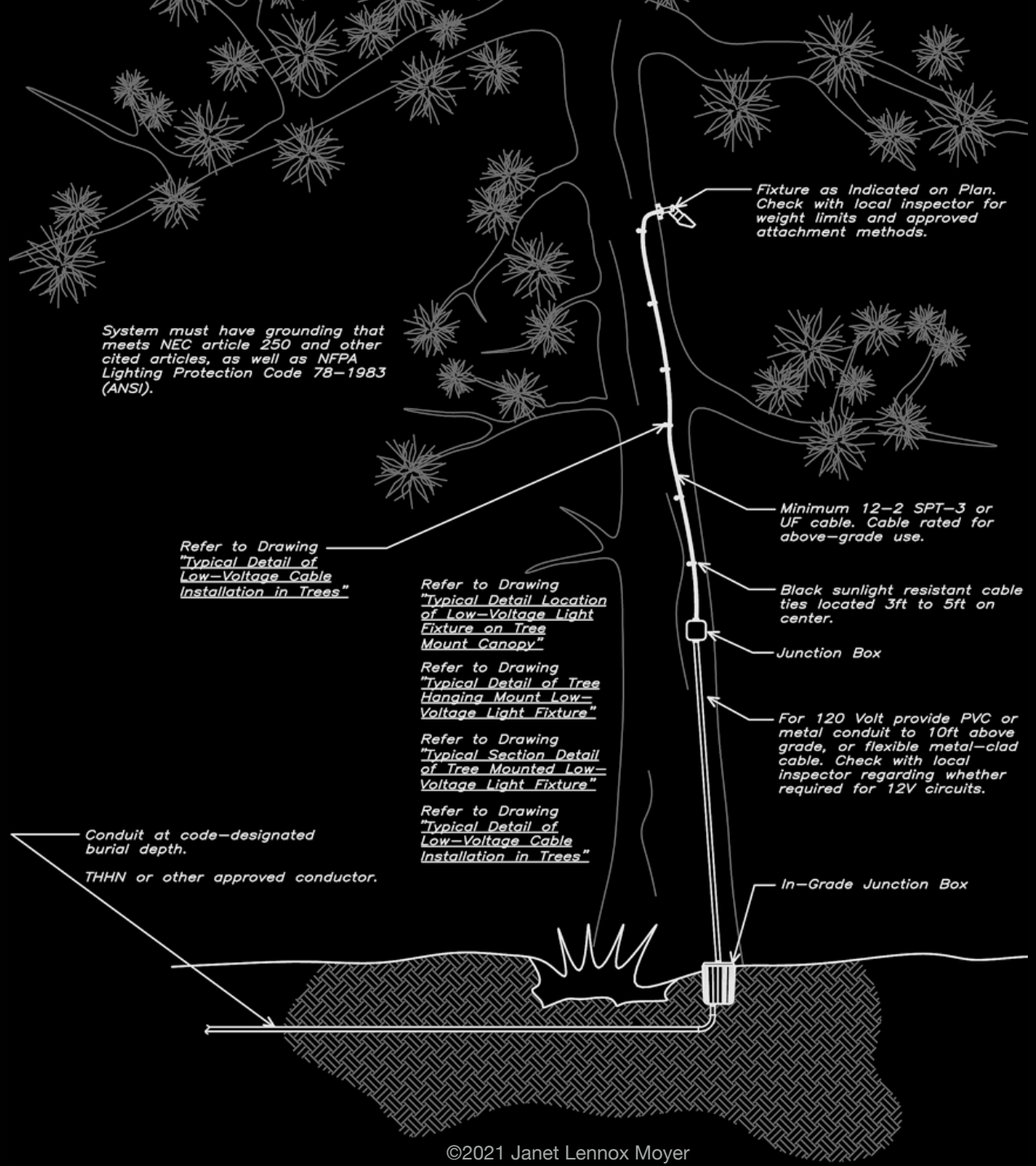
Pinus bungeana



Diospyros virginiana

Trunk Characteristics to reveal with light

Carob tree trunk grazed to reveal texture



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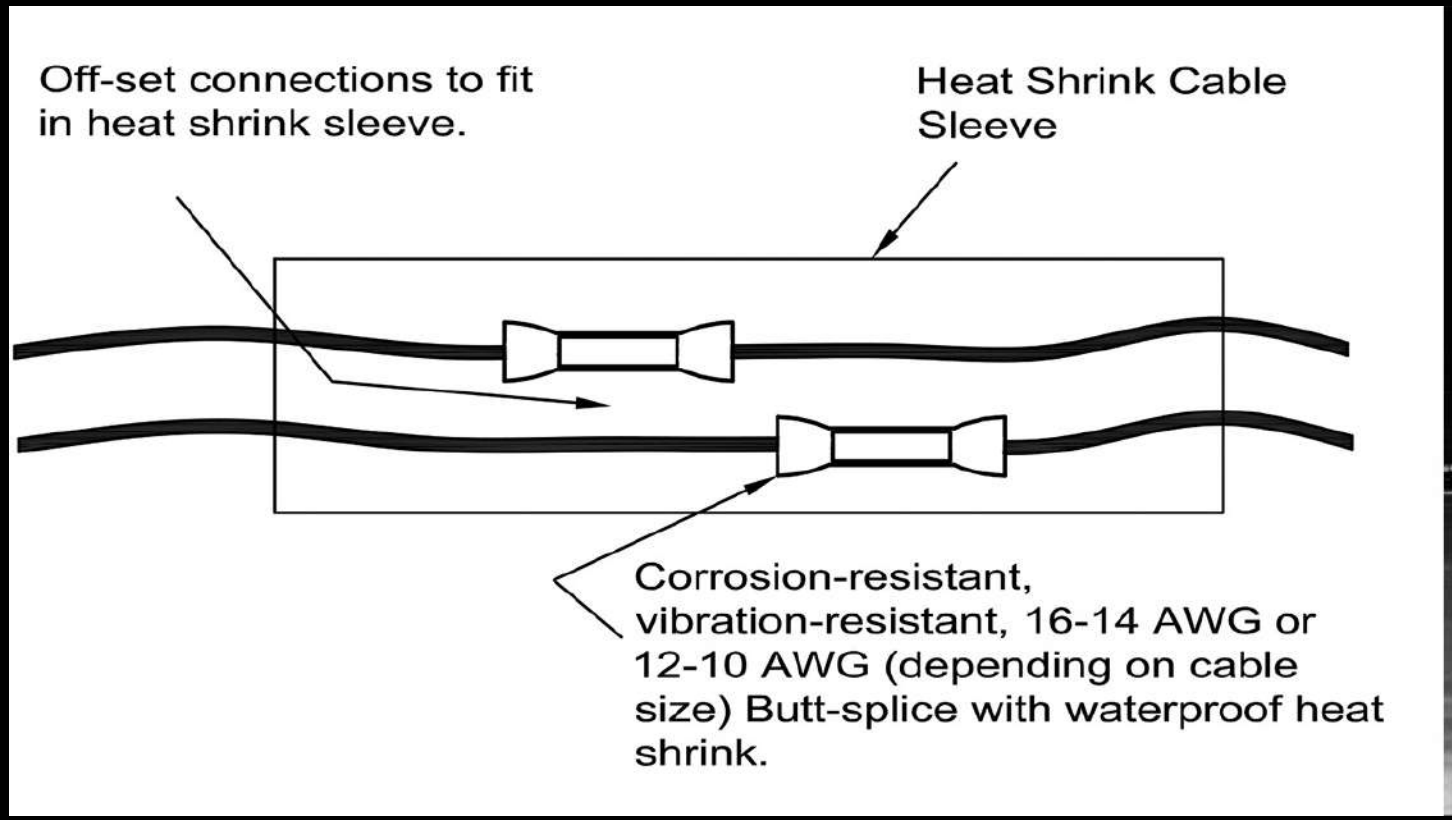

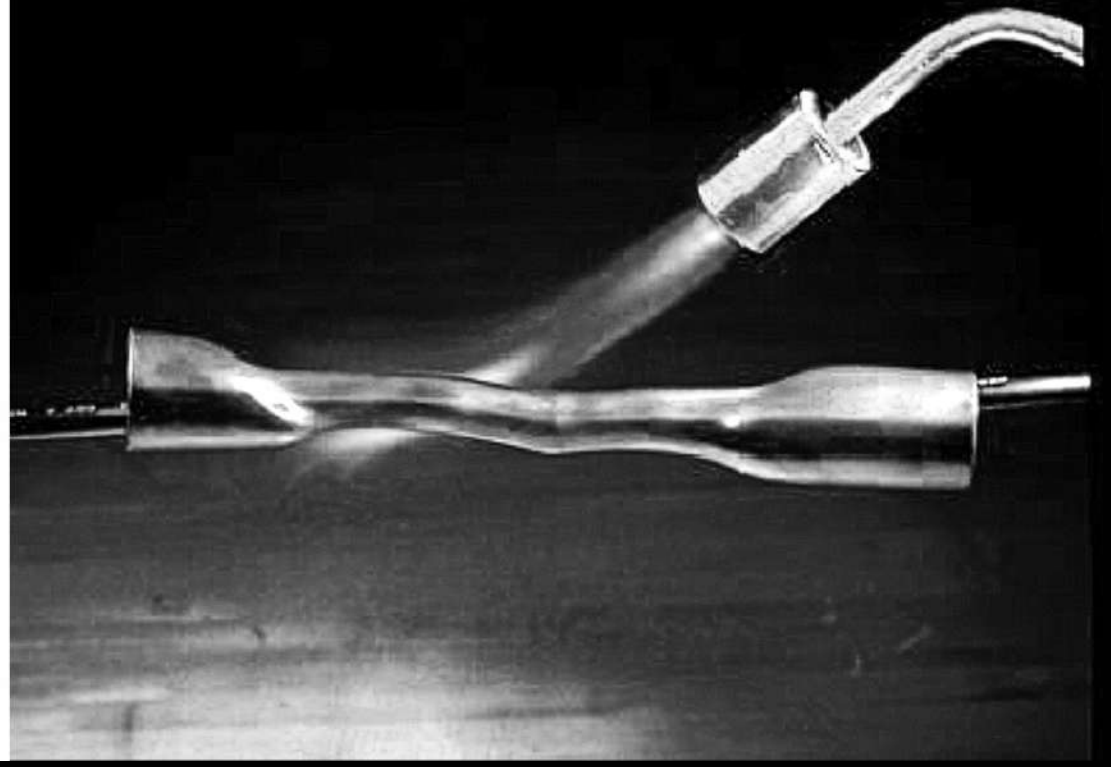

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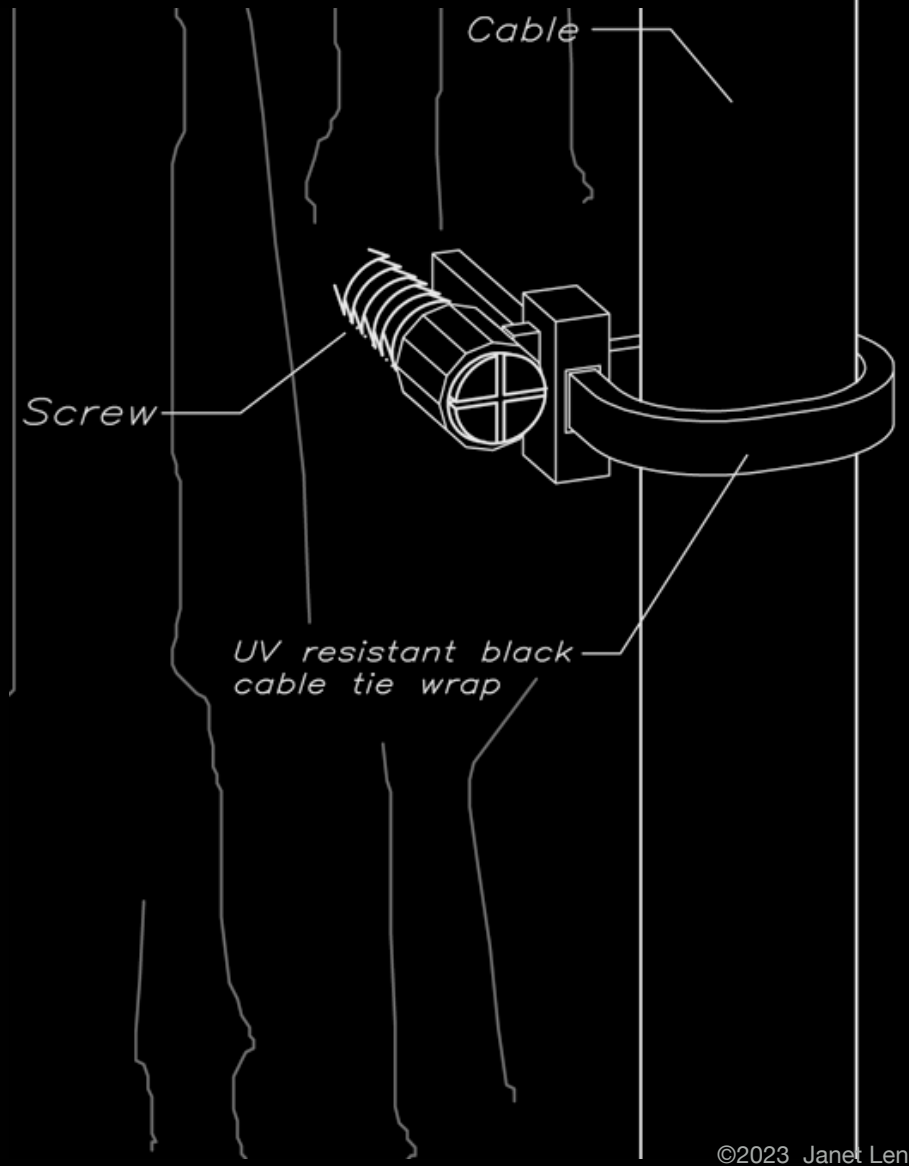

Fasten cable tie to tree branches and tree trunks using stainless steel screws, length as required to pass through the bark and cambium into the heartwood.

Do not tighten screws to cause them to pull into the bark.

Allow for 1/4" to 1/2" of threading exposed for tree growth.

Fasten cables to the "back" side of branches and trunks to tree after focusing is complete.

Fasten cables on intervals of approximately three feet.

NOTE: The use of staples or nails is NOT acceptable.

2 Black Walnut trees (juglans nigra) lit with Halogen

Sept. 2012

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2 Black Walnut trees
(juglans nigra)
Left tree is lit with
Halogen
&
Right tree has Soraa
9.5-watt, 2,700°K
outdoor LED MR16
replacement lamps

Sept. 2012

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2 Black Walnut trees
(juglans nigra)
the left lit with Halogen
&
the right tree Soraa
9.5-watt, 3,000°K
outdoor LED MR16
replacement lamps,
Sept. 2012

Wattage for the
halogen fixtures on
the left = 285;
wattage for the LED
replacement lamps
on the right = 76. A
reduction of 74%

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Sept 2014 - LED not as bright
- on every night for one year - ave 4-5 hrs night

Sept 2014 with LED lamps replaced

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2010 February snow storm

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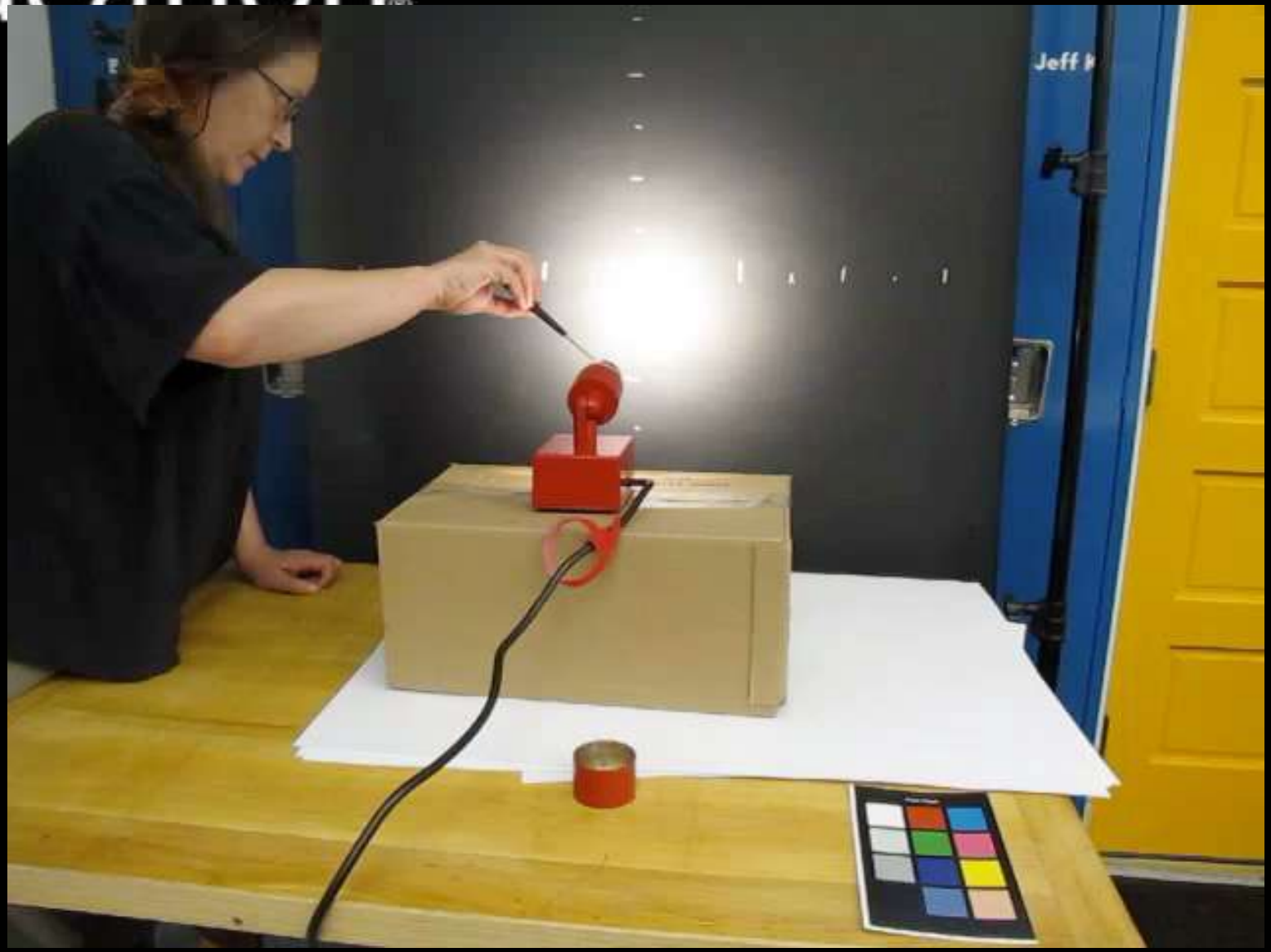

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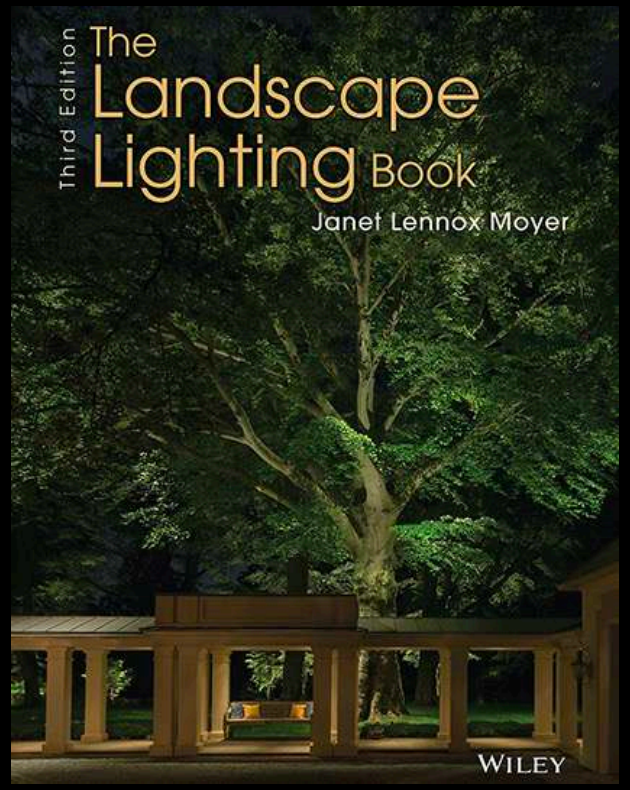
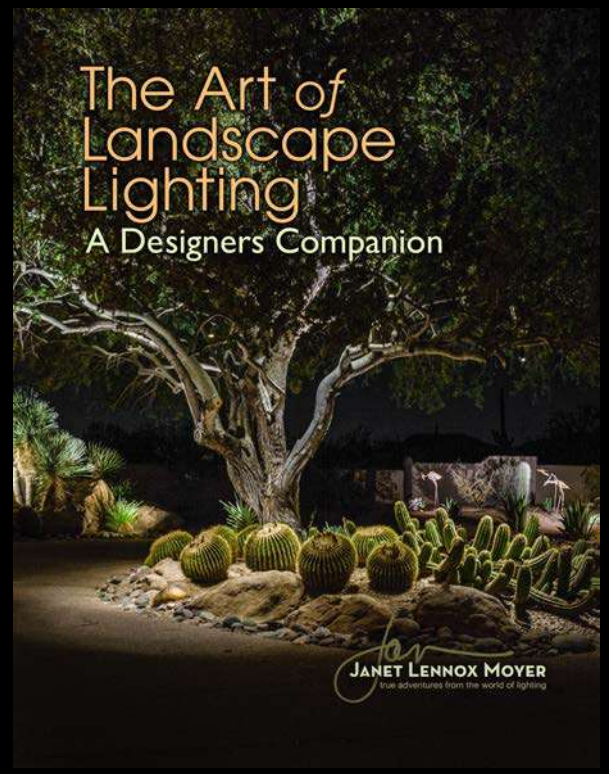


For information on Jan's books look on Amazon, contact the publishers Wiley for The Landscape Lighting Book and Routledge for The Art of Landscape Lighting

For information about Learn Night Light contact IES education at learnnightlight.com or Garden Light LED, or Jan

For information about illi and their hands-on 5-day courses, visit their website



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