

BUILDING ELECTRICAL SYSTEMS

OUTDOOR LIGHTING

1. GENERAL

1.01 This section covers guidelines for outdoor area lighting application. These recommendations are provided for use in the design of new buildings or building additions for all telephone company (Telco) buildings.

1.02 Whenever this section is reissued, the reason(s) for reissue will be given in this paragraph.

2. OUTDOOR LIGHTING

2.01 Outdoor lighting systems should be simple and efficient. The system should provide illumination essential for safety and security for walkways, driveways, and parking lots. Landscape lighting which does not perform an essential function should be minimized, particularly building flood lighting.

2.02 Considerable opportunity exists for savings in first cost and energy use in the design of outdoor lighting. Selection involves the appropriate lamp, fixture, mounting height, spacing, and pole type.

2.03 The use of High Pressure Sodium (HPS) lamps as a light source is recommended as a first choice because of their high efficiency and good control. Control means the light can be directed where it is wanted, reducing light spill onto adjacent property, and minimizing annoying glare to neighbors.

2.04 The fixture should be selected to provide the necessary control, be durable, and be of reasonable cost. The building electrical designer and the electrical consultant should carefully compare fixture specifications and costs since there is a wide range available for outdoor lighting. Greater control and more architecturally pleasing fixtures will usually cost more but for the average work center, office building, etc, lower cost fixtures are usually satisfactory.

2.05 Unless a more pleasing architectural effect is necessary, the best poles to use are ordinary

telephone poles in 45, 40, and 35 foot sizes. Four hundred watt HPS lamps should be used on 45 foot poles and 250 watt lamps on 40 and 35 foot poles. For lower mounting heights, down to 20 feet, use 150 watt lamps. Telephone poles set by your own company will cost only about 20 percent as much as metal poles set on concrete bases. Figure 1 depicts site lighting layout considerations.

2.06 The best and most economical layout will utilize the fewest poles, the highest poles and the most light from each pole, consistent with the desired uniformity of illumination and minimum light spill and glare to adjacent properties. Where possible, the fixtures should be mounted on the building.

2.07 Isofootcandle diagrams can be obtained from the manufacturers of most fixtures. If these are reproduced as overlay transparencies, to scale, a selection of the pole locations, heights, and lamp sizes to light the area to the desired level can be quickly made. Figure 2 is a sample of such a diagram. The design level for parking areas should be 0.5 footcandles maintained.

2.08 The circuiting of the fixtures is also important. Two or more circuits controlled by time clocks are usually necessary with a small area near the building remaining lit for late parkers, while the bulk of the parking area lighting is turned off when most people have gone home. Necessary security lighting can be provided by 1 or 2 small fixtures controlled by a photocell.

2.09 All outdoor lighting fixtures and metallic mounting poles shall be grounded in accordance with NEC Article 410-17.

2.10 In addition, all fixtures and metallic poles higher than 12 feet should be connected to a grounding electrode at the pole. This can be a length of metallic conduit buried in the earth, a ground rod, or an electrode encased in the concrete foundation of the pole.

2.11 At locations near saltwater, do not use unpainted aluminum fixtures or poles.

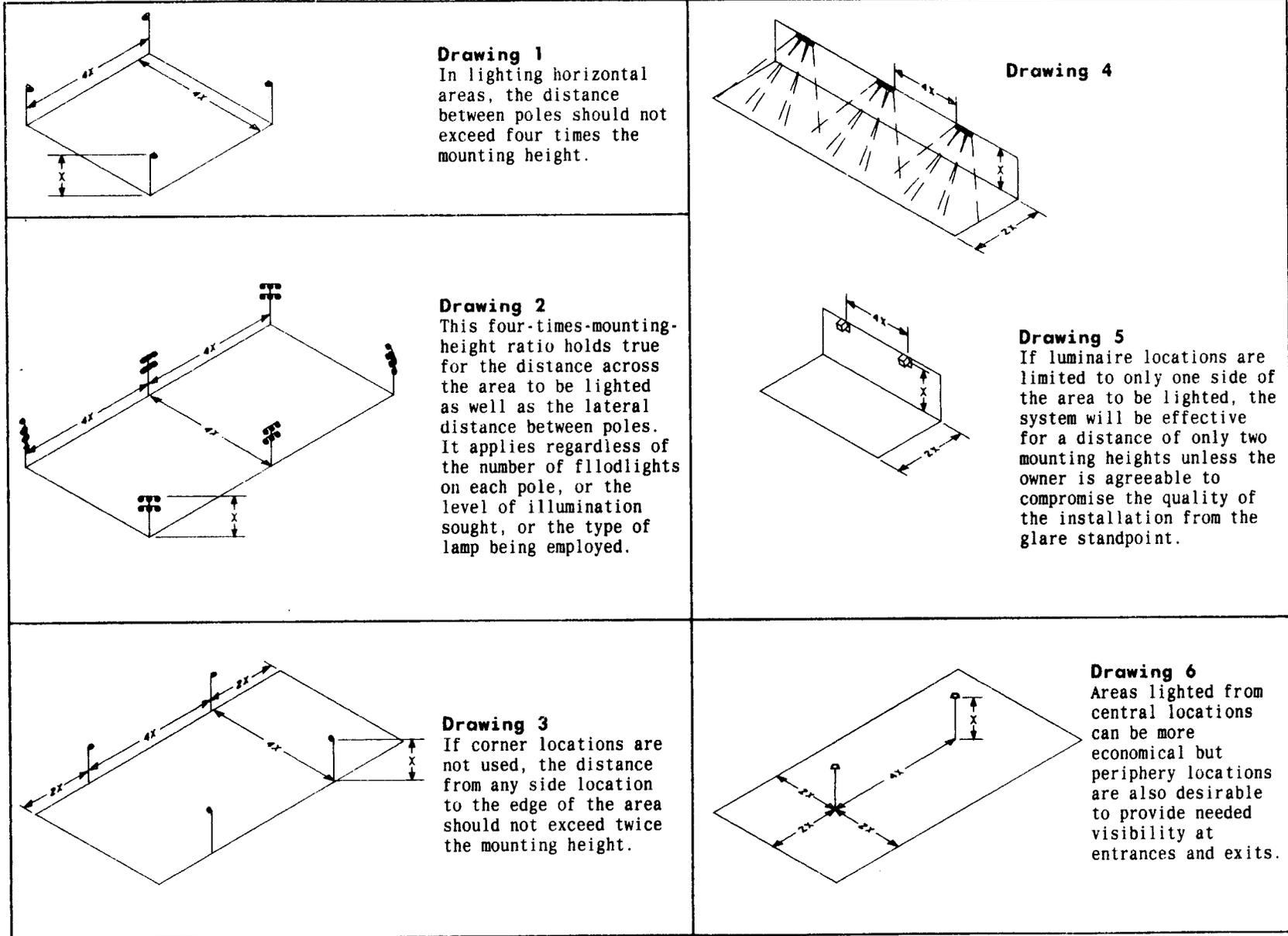


Fig. 1—Site Lighting Layout Considerations for Horizontal Surfaces

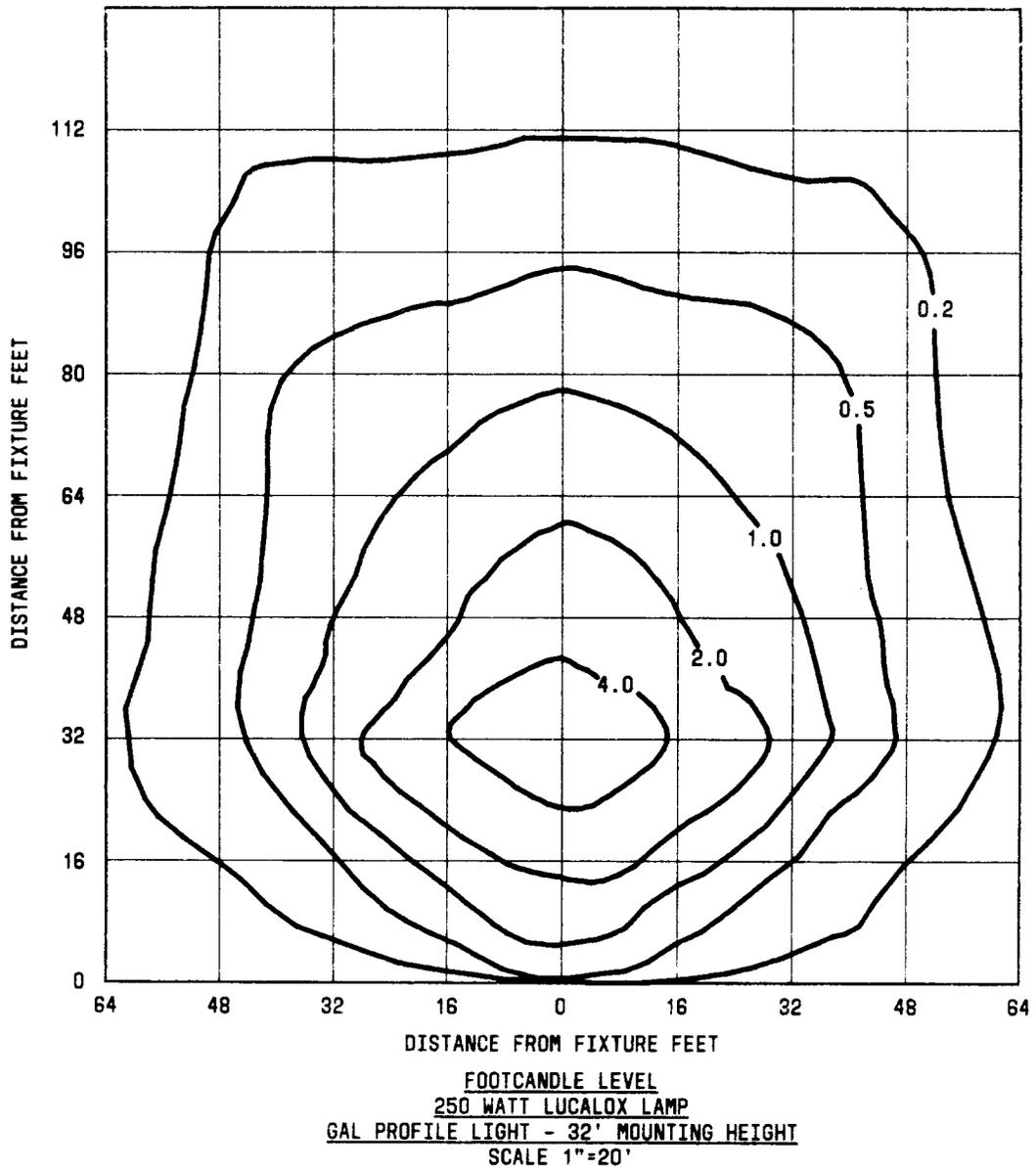


Fig. 2—Isofootcandle Diagram