(3) Designed so that the flanges of the reflectors or other guards protect the lamps from mechanical damage and from accidental contact with scenery or other combustible material

These types of stage lighting instruments must be suitably supported and protected from mechanical damage. Commonly, lampholders are wired alternately on three or four circuits. A splice box is provided on top of the housing for enclosing connections between the cable supplying the border light and the border light's internal wiring, which consists of wiring from the splice box to the lamp sockets in a trough extending the length of the border.

(B) Connector Strips and Drop Boxes. Connector strips and drop boxes shall be as follows:

(1) Suitably stayed and supported
(2) Listed as stage and studio wiring devices

(C) Cords and Cables for Border Lights, Drop Boxes, and Connector Strips.

(1) General. Cords and cables for supply to border lights, drop boxes, and connector strips shall be listed for extra-hard usage. The cords and cables shall be suitably supported. Such cords and cables shall be employed only where flexible conductors are necessary. Ampacity of the conductors shall be as provided in 400.5.

Border lights typically are supported by steel cables to facilitate height adjustment for cleaning and lamp replacement, and the circuit conductors supplying the border lights are carried to each border light in flexible cable. Each flexible cable usually contains many circuits; however, its overall length is limited by its ability to travel up and down without getting tangled. See Exhibit 520.4.

(2) Cords and Cables Not in Contact with Heat-Producing Equipment. Listed multiconductor extra-hard usage type cords and cables not in direct contact with equipment containing heat-producing elements shall be permitted to have their ampacity determined by Table 520.44(C)(2)(1). Maximum load current in any conductor with an ampacity determined by Table 520.44(C)(2)(1) shall not exceed the values in Table 520.44(C)(2)(1).

Extra-hard-usage cords and cables not in direct contact with heat-producing equipment are permitted to have their ampacity determined by Table 520.44(C)(2)(1) instead of 400.5(A).

Table 520.44(C)(2)(1) is based on a minimum 50-percent diversity factor. It makes allowance for the fact that not all circuits are on at the same time, not all circuits are at full intensity (dimmed), and not all circuits are on for a long period of time. If the load diversity does not follow this pattern, such as border lights that are all left on at full intensity to light the stage for rehearsal, lecture, or classroom purposes, Table 520.44(C)(2)(1) must not be used.

Flexible cords and cables are permitted to be used only where necessary, such as for border lights requiring height adjustment, otherwise Chapter 3 wiring methods are required for fixed connections. These fixed conductors are required to follow the ampacity calculations in Article 310, but the adjustment factors in 310.15(C)(1) do not take into account load diversity. Informational Note No. 1 to 310.15(C)(1) refers to Annex B [see Table B.2(11)] for adjustment factors with at least a 50-percent load diversity. This annex table for Chapter 3 wiring methods correlates with the flexible cord adjustment factors in Table 520.44(C)(2)(1) for a load diversity of 50 percent.

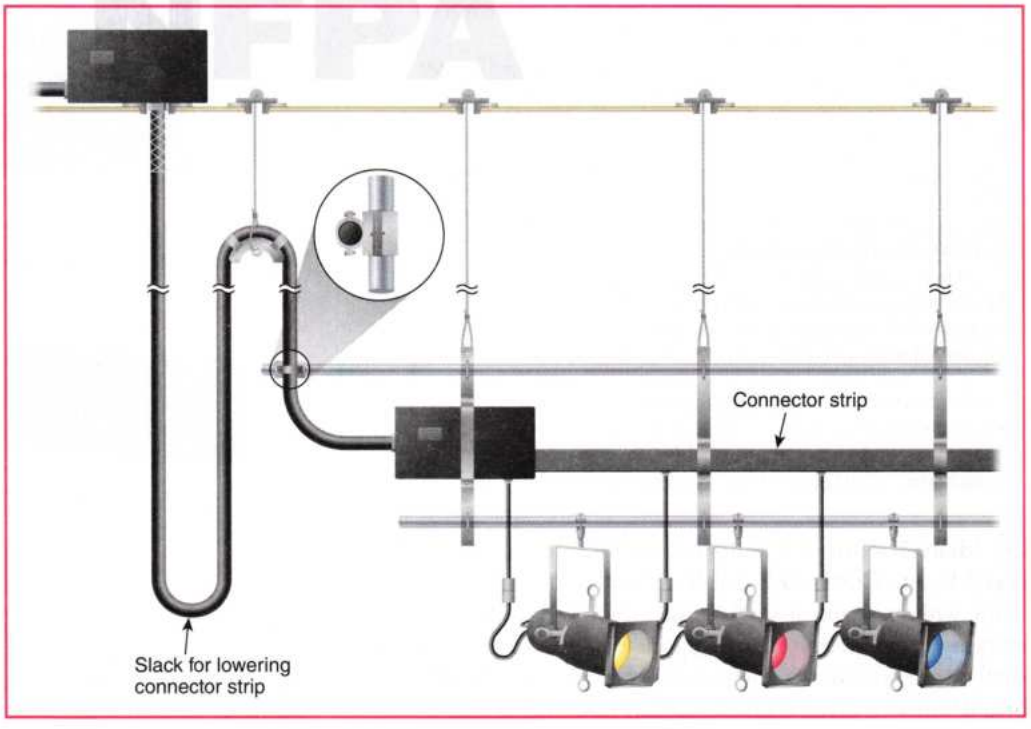

EXHIBIT 520.4 A suspended connector strip with spotlights attached.