ABSTRACT: A shallow lighting fixture for U-shaped fluorescent lamps having an integral electrical component compartment at one end of the fixture. The integral electrical component compartment accommodates in a compact closely spaced relationship, the capacitor, ballast coil, lampholders and wireway and provides for a substantial reduction in size, materials and weight in a fluorescent lighting fixture.
This invention relates to fluorescent lighting fixtures and more particularly to a shallow compact lighting fixture for U-shaped fluorescent lamps.

Conventional fluorescent lighting fixtures generally employ separate ballast enclosures, wireway, lampholders, ballast heat shields etc. fabricated from separate metal parts and disposed in different locations throughout the fixture. The lampholders are generally mounted on both ends of the fixture and a separate ballast housing is generally mounted either on the exterior or interior of the top panel of the fixture. In addition one or more fabricated wireways are generally present to connect the ballast components to the lampholders. This kind of construction generally results in many metal surfaces which can vibrate and cause noise, longer ballast leads due to the remote location of the ballast with respect to the lampholders and a substantial increase in fixture depth by virtue of the placement of the ballast compartment above the lamp line of the fixture.

With the ever-increasing cost of building construction it is of course desirable to minimize the size of required building components in an effort to increase the amount of usable space within the confines of the structure. For this reason it is particularly desirable that the lighting fixtures used in buildings be of a minimum size particularly in terms of depth in order that they may fit into smaller and smaller plenum spaces between the ceiling of one room and the floor of the room above. Conventional structures which stack the fixture refractor, the lamp cavity, the reflector and the lamp ballast compartment vertically in the fixture do not minimize to the extent possible fixture depth.

SUMMARY OF THE INVENTION

It is an object of this invention to provide a fluorescent lighting fixture having a minimum depth. Another object of this invention is to provide a fluorescent lighting fixture in which the lampholders, ballast components and electrical wiring are all contained within a single compartment or bracket. A further object of this invention is to provide a fluorescent lighting fixture having a minimum vertical depth, which is adapted to utilize U-shaped fluorescent lamps, and carries in a single compartment the ballast components, lampholders and electrical wiring without adding to the vertical height of the fixture.

The foregoing objects and others are accomplished in accordance with the present invention by providing in a shallow lighting fixture for U-shaped fluorescent lamps; a housing means having a top member and downwardly extending side members, compartment or bracket means secured to the interior surface of one of the side members, and a plurality of spaced lampholders, ballast means and capacitor means all mounted in the compartment or bracket, said ballast means and capacitor means being mounted between said spaced lampholders. The shallow lighting fixture further includes a refractor closing off the open bottom of the fixture which is releasably retained by projections on at least two of the downwardly extending side members.

BRIEF DESCRIPTION OF THE DRAWING

The foregoing objects and others along with many of the attendant advantages of the present invention will become more readily apparent and better understood as the following detailed description is considered in connection with the accompanying drawings in which:

FIG. 1 is a side elevational view of a fluorescent lighting fixture constructed in accordance with the present invention with the side panel thereof removed;

FIG. 2 is a top view of a fluorescent lighting fixture constructed in accordance with the present invention with the top panel or reflector removed;

FIG. 3 is an enlarged view of the back side of the electrical component compartment or bracket of the present invention; FIG. 4 is a front view of an alternative embodiment for the electrical component compartment or bracket of this invention;

FIG. 5 is a top plan view of the embodiment of FIG. 4; and

FIG. 6 is a rear plan of the electrical component compartment or bracket of the FIG. 4 embodiment.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now in detail to the drawings wherein like reference characters represent like parts throughout the several views there is illustrated in FIG. 1 a fluorescent lighting fixture for U-shaped fluorescent lamps which includes a housing generally designated 10 having a top member 12 and downwardly directed side members 14 (FIG. 2) and downwardly directed end members 16. Each of the end walls or members 16 carry at their bottom edge an internally directed flange 18 the purpose of which will be later described.

Along one of the end walls 16 is secured an electrical component compartment or bracket 20 which is substantially U-shaped in cross section with its open end adjacent the end wall 16. Mounted within the electrical component compartment or bracket 20 are a plurality of lamp sockets or lamp holders 22 spaced to receive one or more U-shaped lamps 24. For purposes of illustration FIG. 2 depicts a bracket for carrying two U-shaped lamps 24. Also carried within the compartment or bracket 20 are the lamp capacitor 26 and a lamp ballast coil 28. The capacitor and ballast components are mounted within the bracket 20 in the spaces between the lamp sockets 22. As best illustrated in FIG. 3, the lamp sockets, the lamp capacitor and lamp ballast are all contained in a single fabricated metal compartment 20. In addition, all of the electrical wiring 30 necessary to the operation of the lamps or more specifically for connecting the various components of the fixture are also entirely disposed within the electrical component, compartment or bracket.

The fluorescent lighting fixture also includes a glass or plastic refractor 32 (FIG. 1). Although many different kinds of refractors may be employed and different methods may be used to attach the refractor to the fixture housing, for purposes of illustration, the refacter 32 has a pair of upstanding right-angle flange members 34 on the inner surface thereof adjacent the ends of these flanges are adapted to over lay the internally extending flanges 18 on the end members. As illustrated in FIG. 1, the end members 16 to retain the refractor in place when the lamps are in operation. The refractor 32 may be removed from the housing 10 to provide access to the lamps 24 by sliding the refractor all the way to either the left or the right as viewed in FIG. 1 so that the horizontal portion of right-angle flange 34 at the other side of the fixture just clears the end of the inwardly directed flange 18 associated therewith and permits the refractor to be removed.

Access to the ballast and capacitor components is available through a door or removable panel means 36 in the end member 16 to which the compartment 20 is mounted should it be necessary to change either of these components. Any well-known means may be employed for retaining the door or removable panel 36 in place such as for example simple spring clips 38.

Referring now to FIGS. 4, 5 and 6 there is illustrated yet another embodiment which the electrical component compartment or bracket may take. In this embodiment the compartment 20A has a sculptured shape which further adds to the minimization of fixture width. As best seen in FIG. 5 the compartment or bracket 20A has a plurality of recesses 40 in which are mounted the lamp holders or lamp sockets 22. In this embodiment the lamp ballast coil 28 and the lamp capacitor 26 are mounted in the nonrecessed sections intermediate the lamp holders 22 and again all of the electrical wiring required to connect the operative elements of the lamp and
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3. A shallow lighting fixture according to claim 1, wherein said electrical component compartment is substantially U-shaped in cross section with the open end thereof facing the interior surface of said end member.

4. A shallow lighting fixture according to claim 1 wherein said electrical component compartment includes a plurality of recesses in one side thereof said lamp sockets are disposed within said recesses.

5. A shallow lighting fixture according to claim 4, wherein said ballast and capacitor means mounted on said bracket means are disposed in nonrecessed areas intermediate said recessed areas.

We claim:

1. A shallow lighting fixture for U-shaped fluorescent lamps comprising:

a. a housing having a top member, downwardly extending side members and downwardly extending end members,

b. an electrical component compartment secured to the interior surface of one of said end members;

c. a plurality of lamp sockets mounted to and spaced along said electrical component compartment and adapted to receive one or more U-shaped fluorescent lamps; and

d. a lamp ballast and a lamp capacitor mounted within said electrical component compartment intermediate said spaced lamp sockets.

2. A shallow lighting fixture according to claim 1, wherein access means is located in said end member adjacent the location of said ballast and said capacitor in said component compartment to provide access to said ballast and said capacitor.

3. A shallow lighting fixture according to claim 2 wherein ballast and capacitor means are disposed in nonrecessed areas intermediate said recessed areas.

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